

PISTOLS, REVOLVERS, AND AMMUNITION

by

MICHEL H. JOSSERAND

and

JAN A. STEVENSON

fully illustrated

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Dedicated to the memory of Lieutenant Colonel Victor Leleu

[Introduction]

THIS BOOK is intended to fill what has long appeared to us an enormous gap in the English-language literature of handguns. That a breach might exist in such a dense thicket of bound and illustrated prose may seem cause for surprise, and therefore justifies a word of explanation. Handgun literature is rich in hyperspecialized works on particular brands and models of guns of interest to advanced collectors. However, many beginning students of the handgun, lacking the foundation and overall context which such books presuppose, find them virtually impenetrable. Often enough the authors of these imposing tomes aggravate the situation by concentrating on minute variations of the model that interests them, to the near exclusion of the mechanical principles and historical importance of their subject.

At the other extreme we note a profusion of supposed „basic“ books on handguns. Most are little more than elaborate catalogs of currently manufactured models. Those which escape this classification too often reflect an uncritical and unanalytical approach, an absence of perspective, and a refusal to confront the handgun as a subtle and complex machine.

In between are several general books on handguns, such as *Sixguns* by Keith and Colonel Charles Askins's *The Handgunners Book*, both by men of vast experience and much sagacity. But they deal largely with the use to which the handgun is put.

There seemed to us a need for a book which dealt directly with the handgun and its cartridge, which put both the mechanical evolution and the historical development of the modern handgun in a comprehensible context, which, unlike W. H. B. Smith's classic *The Book of Pistols and Revolvers*, was readable from end to end, which presupposed no prior knowledge on the part of the reader, and which, starting from zero level, took him a substantial way up the ladder to general expertise.

The present book is the result of a combined effort over several years and owes its Gallic tinge to its ultimate origin. It was first published by Michel Josserand in Paris in 1966 as *Les Pistolets, les Revolvers et Leurs Munitions*. The first edition has since seen five reprintings, and a second French edition is now in preparation. I acquired a copy in June, 1968, and immediately recognized both the intrinsic value of the book and the fact that nothing comparable existed in English.

The structure of Josserand's original book remains substantially intact, but in order for the English language edition to better fulfill the criteria we set for it, the book has, in revision, more than doubled the word count, and has taken on a heavy cargo of new photographs. A few passages from the French edition which seemed of little interest to American readers have been deleted.

Any co-authored work eventually raises the question of division of labor. In this instance it has been remarkably equal, I feel. Only Chapter Ten, „U.S. Legislation,“ has not had both of us cobbling around on it. As a rough rule of thumb, it might be said that Chapters Two, Four, and Nine are primarily Michel Josserand's work, while I am largely responsible for Chapters One, Seven, and Ten. Chapters Three, Five, Six, and Eight are the result, for better or worse, of our well-intentioned efforts in about equal proportion. The reader whose curiosity runs deeper may compare the present volume with the second French edition, available from Crépin-Leblond et Cie, 12, rue Duguay-Trouin, Paris VI, France.

For a book that pretends to cling tenaciously to its stated subject of modern handguns without excursion into the related fields of shooting technique, holsters, accessories, pistol competition, choice of weapons for specific purposes, et al., this one may be criticized, perhaps validly, for devoting a grossly disproportionate amount of space to firearms legislation. As one who has endeavored for years to remain comfortably detached from the controversy over gun laws, I can only say that the time is now past when any handgunner could afford himself this luxury.

There were other considerations. Michel Josserand's scholarly review of French firearms law over the centuries seemed too valuable to delete, particularly since our legislators, in contented ignorance of the European experience, seem quite prepared to fetch us down this same well-trodden path. There is much in Chapter Nine on which to linger and reflect.

Chapter Ten was added for reasons other than symmetry. Since, as is often said, ignorance of the law is no defense, it seemed worthwhile to attempt a cogent summary of American firearms legislation, so that the reader may approach his avocation amply forewarned. And since too much of an emotional nature has already been written on both sides of this issue, a calm analysis did not seem out of order.

This book is not intended to be the final word on anything, nor can it pretend to be a primary source or reference. If it serves to introduce several among you to the inexhaustibly rich field of study which the handgun has been for us, if it answers a number of the questions for which we

ourselves had difficulty finding the answers when we were beginners in the field, if it serves to raise still more questions to which the more specialized books in the bibliography hold the key, it will be worth the task of its writing.

Jan A. Stevenson

[Acknowledgments]

FEW GUN BOOKS of any weight are written without leaning heavily on the published wisdom of others; we have probably leaned far heavier than most, and have tried to pay our intellectual debts, if summarily, in the Bibliography. Most of the books there listed are sufficiently specialized so that it is obvious at a glance for which chapters we used them as sources. In addition we have from time to time, as it seemed appropriate, indicated in the text from which source we were drawing. Thus when John Nigel George or J.R. Clergeau, for instance, are mentioned, you may be assured that we owe them a debt of gratitude.

Several books of a more general nature were invaluable throughout. Among these are W.H.B. Smith's *Book of Pistols and Revolvers*, Dr. J. Howard Mathews' scholarly two-volume work, *Firearms Identification*, remarkable for its relative paucity of error, and Vol. I of George B. Johnson and Hans Bert Lockhoven's *International Armament*. Geoffrey Boothroyd's *The Handgun* would have spared us a great deal of tedious research had it been published a year sooner. We warmly recommend these titles to the reader who wishes to carry his knowledge of handguns a great deal further than this book can take him.

Among our many colleagues who have given invaluable technical advice during the preparation of this book, we are particularly indebted to Robert Angell and Shelley Braverman of New York; Geoffrey Brown of Yorkshire, England; Raymond Caranta of Aix-en-Provence, France; Michael Cazeau of the Agence France Press in Paris; Fred Datig of Lucerne, Switzerland; and Ken Warner of Falls Church, Virginia. Albert Courty and Grasset frères, gunsmiths at Paris, M. Jeannot, gunsmith at Levallois, and Fred Davis and Charles Lanham, gunsmiths at Falls Church, Virginia, have been of help on more occasions than we can recall.

We are particularly grateful to John Zornig and Diccon Bancroft, who gave so freely of their time and knowledge in guiding us out of various mathematical cul de sacs.

Our research has been often expedited by the kind assistance of the staffs of the Département des Imprimés of the Bibliothèque Nationale at Paris, the Bodleian Library at Oxford, the Laboratoire de Balistique de l'Identité Judiciaire at Paris, and the Laboratoire de Médecine Légale de la Faculté de Médecine at Paris.

Most of the photographs were made by the authors; all the more reason for us to be grateful to those who so generously provided photographs of weapons that were not included in our negative files.

In this regard, our most heartfelt thanks goes to the Winchester Museum of New Haven, Connecticut, which supplied pictures of the magnificent antiques from their collection, without which Chapter 2 would have been barren.

Colt, in Hartford, Connecticut, and Smith & Wesson, in Springfield, Massachusetts, both put their photo files at our disposal, as also did Charter Arms of Bridgeport, Connecticut; Llama-Gabilondo in Vitoria, Spain; Remington's Ammunition Division in Bridgeport, Connecticut; and Carl Walther of Ulm/Donau, Germany. Chris Lydle and Siegfried Hübner provided photos from their files, and to the editors of the *Deutsches Wafen Journal* we owe thanks for the photograph of the Segallas percussion pistol.

Literally dozens of fine arms collections, public, private, and governmental, were thrown open for us to study and photograph in the course of our research, with a hospitality which left us sometimes astonished and always grateful. On several occasions we encamped with our equipment for as long as two weeks at a stretch, putting a pronounced wrinkle in the normal functioning of the establishment, and seriously inconveniencing the owner or curator of the collection, though invariably they were far too gracious to intimate that we were a burden. Without the help of these fine and generous people, this book, in its present state, would have been an impossibility.

The photographic backbone of the book consists of arms in the collections of Waffenfabrik Bern, the Swiss Federal Arsenal; and the Pietro Beretta Company of Gardone Val Trompia, Italy. Our debt to them can only be described as vast.

Others, who were equally generous, will be listed in order of frequency with which arms from their collections appear in the book, and when the frequency is about equal, in alphabetical order.

Our warmest appreciation to: Carl Walther Waffenfabrik of Ulm/Donau, Germany; the French National Arsenal at Saint-Étienne; the Imperial War Museum at London; Colt Pat. Firearms Manufacturing Company at Hartford, Connecticut; Grasset frères at Paris; Mauserwerke A.G. at Oberndorf am Neckar, Germany; David Griffin of Northford, Connecticut; Geoffrey Brown of Yorkshire, England; Messrs Hebsacker and Lehnert of Schwäbisch Hall, Germany; the Schweizerische Industrie Gesellschaft, better known as SIG, at Neuhausen am Rheinfall, Switzerland; Fred Datig of Lucerne, Switzerland; and Samuel Cummings of Monte Carlo, Monaco.

To: the Birmingham Proofhouse, Birmingham, England; A. Courty of Paris; the Préfecture de Police, Paris; Waffen Franconia at Würzburg and Munich, Germany; and the Hermann Weihrauch Werke at Mellrichstadt, Germany.

To: Jakob Brandt of Wiesbaden, Germany; Raymond Caranta of Aix-en-Provence, France; Hans Erlmeier of Wiesbaden, Germany; the Erma-Werke at Dachau, Germany; Waffen Glaser at Zurich, Switzerland; M. Jeannot, of Levallois, France; Dr. Marion Jurek of Birmingham, England; Henri Kerst of Fonteney-aux-Roses, France; P. MacCarthy of Mayfield, England; Manufrance, at Saint-Étienne, France; Paul Potin of Cambrai, France; Waffenfabrik Schmidt, of Ostheim, Germany; and Smith & Wesson, at Springfield, Massachusetts.

We would also like to acknowledge the warmth and graciousness with which we were received by the three great Spanish handgun manufacturers, Astra-Unceta at Guernica, Llama-Gabilondo at Vitoria, and Star-Bonifacio-Echeverría at Eibar. During a period of two weeks we were afforded every courtesy, and made approximately seven hundred photographs of the arms, many of them very rare and some entirely unknown, in their collections. Several weeks after we had left Spain the undeveloped films, along with our photographic equipment, were stolen. The book would have been much the richer but for this misfortune.

Some of the photographs in this book have previously appeared as illustrations for our magazine articles, and we are thankful to the editors of the following publications for permission to reprint them: Cibles, Guns & Ammo, the Gun Digest, Gunfacts, Guns, Gunsport, and Law & Order.

The excellent drawings, of which there are twelve, were done by Jean Jordanoglou of Marseilles, France, whose magnificent work in Caranta and Cadiou's *Le Guide des Collectionneurs d'Armes de Poing* has established him as unquestionably one of the world's finest technical illustrators.

We are grateful to Mr. Carl Bakal of New York and his publishers, McGraw-Hill and The Paperback Library, for permission to quote directly several passages from his book *No Right to Bear Arms*.

There are many other names we would like to add to this already weighty list. Some have given us invaluable assistance in research projects that did not directly concern this book; others made important contributions both direct and indirect to the book, but have preferred not to be mentioned. Still others we have refrained from mentioning, or have listed only the name of their employers, since we felt they would prefer it that way. To all of them our sincerest gratitude.

Those who have read this far may wonder if the authors have served a purpose other than to filter and arrange in tidy heaps the fruits of other people's labor. That, along with drawing a few conclusions that we hope are judicious and offering an opinion here and there, is largely it. Our other function is to shoulder the blame for whatever technical errors, faults, flaws, and whatnot the book may contain. Despite our best efforts, there most assuredly will be errors to be discovered; as many of these as we become aware of will be corrected in the second edition. Until then, we will collectively accept responsibility for them, and blame them each an the other.

M. H. J.

J. A. S.

[Preface to the French Edition]

NOTHING PREDISPOSED the author to write a book on firearms.

Nothing, were it not that during World War 11, when he was not yet fifteen years of age, chance, in the form of the Atlantic Wall, thrust him into the midst of weaponry of every imaginable sort.

Nothing, save that having maintained an interest in the theory of arms, he was struck by the absence of contemporary works in French, and somewhat humiliated to note the ample body of literature that other countries devote to the subject.

Nothing, had he not been shocked by the total ignorance and profound lack of interest of his fellow citizens, no matter from what social level they came.

Others are better qualified than he to produce a work on handguns of the past and present. These specialists, perhaps, hadn't the time at hand, for a book such as this, if it is to be of any value, is not written in just a few months.

There was a time in France when arms were held in esteem, when shooting was a national sport. That was before 1914. Firearms were the subject of a vast body of literature, and innumerable now-obscure individuals, as many civilians as military, wrote, with more or less fortunate results, entire volumes devoted to the history, the development, and the technical and practical aspects of firearms and their use. For reasons that we shall analyze, this taste for arms has been stifled and stunted to the point that today it is nothing more than the miserable privilege of a few obstinate hobbyists, regarded by their fellow man with astonishment, an astonishment less respectful than pitying. The author has as his goal a rekindling of our ancestral interest in weapons and the shooting sports. History will have to say if he succeeded.

Michel H. Josserand

[1]

THE BASICS

NO MATTER what its purpose-hunting, defense, target shooting, or whatever-the function of a handgun is to launch a projectile, and the design of the arm is hardly comprehensible without an understanding of the cartridge: its construction and how it discharges.

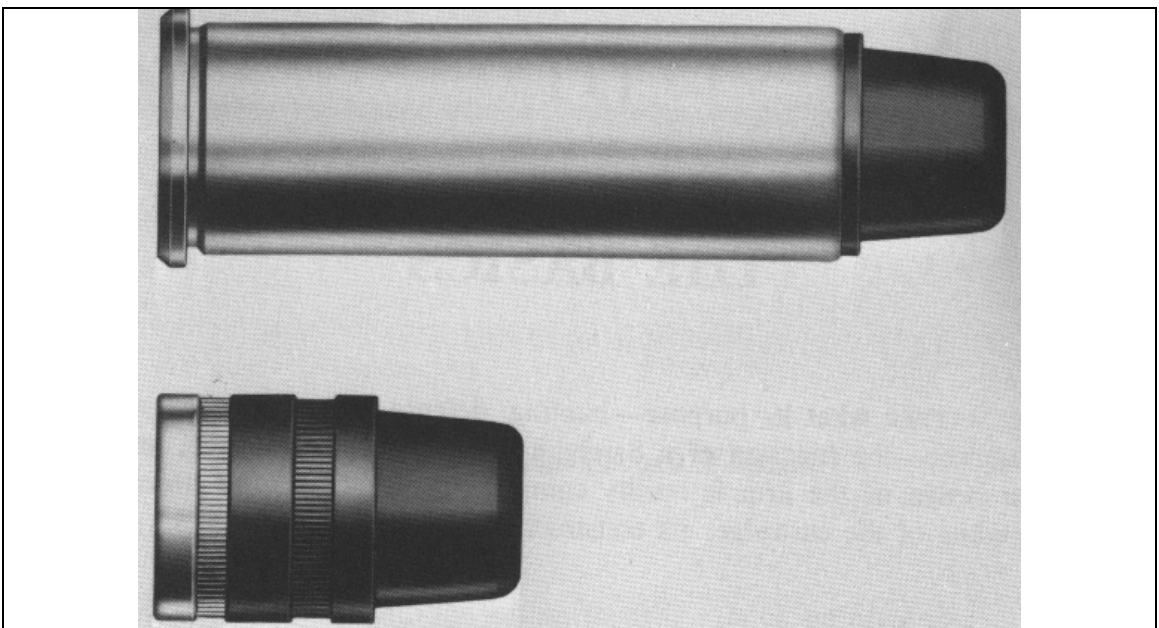
THE CARTRIDGE

A cartridge is a unit of ammunition, and is made up of four principal components: the bullet, or projectile; the powder charge; the primer; and the case, which ties it all together.

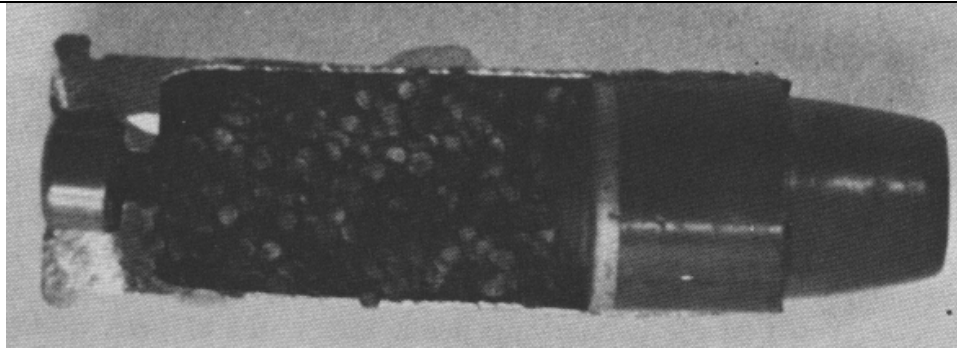
The case is in effect a metallic jug, with the primer stuck in the base, the bullet wedged corklike into the mouth, and the powder charge contained inside. The case is usually made of brass, and often has a rim around its base (the base may also be referred to as the case head, or just „head,“ and is located at the opposite end of the case from the mouth, neck, and, in the case of a bottleneck rather than a straight-walled case, from the shoulder as well, which is something of a logical embarrassment) to hold it in place in the gun and keep it from being pushed deeper into the firing chamber when struck by the firing pin.

The base or head of the case is quite thick, to give it enough strength to keep from rupturing on discharge, for this is the only part that is not fully supported by the steel of the gun. The walls of the case taper and become quite thin in front, so they expand outward against the steel of the gun easily to release their grip on the bullet and let it move forward when the shot is fired. The case head is countersunk in the center to receive the primer, which, when seated in this „primer pocket,“ lies flush with the base of the case. A small tunnel called the „flash hole“ communicates from the primer pocket to the interior of the case where the powder charge is contained.

The function of the primer is to ignite the powder, and this complex little assembly is in turn made up of four components. The housing, a metallic cup called just that-the primer cup-is seated open end inward in the primer pocket of the case head. Flush with the closed end of the primer cup lies a thin wafer of high explosive compound called the primer disk or pellet. Early metallic cartridge primer pellets were made of fulminate of mercury, but the mercuric residue, after firing, attacked the brass of the case, causing it to crack, thus rendering it useless for reloading. Primer pellets were then changed to a potassium chlorate mixture, but these deposited salts in the barrel which caused heavy rusting. Today a lead styphnate composition is generally used. Separating the pellet from the anvil is a thin sheet of foil intended to protect the pellet from oil or moisture which might deaden it.



Revolver cartridges are typically straight-walled and have a pronounced rim at the base. This big-bore Remington cartridge is loaded with a semiwadcutter, or „Keith“-type, bullet with a copper gascheck crimped onto its base to retard bore leading. The cannelures in the bullet are usually packed with grease to further ease its passage down the barrel.



Cutaway .38 Special cartridge shows primer assembly seated in the case head, flash hole leading from primer pocket to the powder compartment, powder charge of flaked nitrocellulose, and a lead semiwadcutter bullet. The massive head of this modern centerfire case enables it to withstand much higher pressures than a rimfire or an old type „balloon head“ center fire.

Completing the primer is a three-legged (sometimes two-legged) anvil, the feet of which seat on the floor of the primer pocket around the flash hole, and the apex of which contacts the primer pellet.

The powder charge is composed of a quantity of tiny disks of nitrocellulose, sometimes with a nitroglycerin additive. The belligerent tribes of the Khyber Pass area of India and also those of the Kurdish region of Iran and Iraq, who were in a chronic state of rebellion against the British or whatever hapless authority chanced to hold sway at the moment, used to raid the local cinemas periodically and cart off all the movie film an hand, which they would later shred up for gunpowder. It worked fine, and put British patrols in the tragicomic predicament of being decimated by an early edition of *Beau Geste* or *The Great Train Robbery*. Movie film, by the way, is no longer made of nitrocellulose.

Gunpowder (smokeless, not the old black powder) does not explode, but rather burns very rapidly. The more it is confined, the faster it burns. Small quantities may be burned in the open air with impunity, but when confined in the chamber of a gun, it burns very rapidly indeed, generating an enormous volume of gas.

The bullet is simply a lump of lead, sometimes copper-jacketed, and may be round, cylindrical, cylindroconical, or some similar shape. Generally they are cylindrical with a flat or slightly hollowed base and a rounded nose. The bullet is the projectile portion of the cartridge, and the cartridge itself is never properly called a „bullet.“

The whole assembly-bullet, primer, powder, and case-is termed a cartridge or a round of ammunition. Most revolvers hold six rounds when loaded.

What we have just described is a round of center-fire, Boxer-primed (after the inventor, Colonel Edward Mounier Boxer, an English officer of the late nineteenth century) handgun ammunition. There are other types, but they vary primarily in the construction of the primer. A center-fire Berdan-primed (for Colonel Hiram Berdan, an American) cartridge uses an upstanding stud of brass in the floor of the primer pocket as an anvil; the anvil is therefore a part of the case rather than a separate component in the primer assembly.

In rimfire cartridges the primer compound is contained in the hollow rim around the full circumference of the case head, and is distributed there centrifugally in a loading machine at the factory. Pinfire ammunition (now obsolete) has a pin, in fact, projecting perpendicularly from the wall of the case just ahead of the base, and it is driven inward, or rather downward, by the hammer to strike the primer pellet which is imbedded in a compressed paper wad in the case head.

WHEN THE SHOT IS FIRED

For firing, the cartridge is placed in the chamber of the gun, which may be the back portion of the barrel or a separate Part just behind the barrel. The case is supported all the way around its circumference by the steel wall of the chamber, and at the rear by the breechface portion of the slide, bolt, or breechblock of an automatic or the frame of a revolver.

When the trigger is pulled to fire the gun, the firing pin is driven forward through a small hole in the breechface and strikes the primer, indenting the primer cup and crushing the primer pellet on the anvil. The primer pellet explodes and sends flaming particles surging around the legs of the anvil and through the flash hole into the powder compartment where they ignite the powder. The powder burns rapidly, generating enormous quantities of gas, hence pressure (on the order of 15,000 pounds per square inch or more), forcing the case head back against the breechface and expanding the walk of the case into tight contact with the chamber walls. The gasses must

escape somehow, and the only route open to them lies forward, where only the bullet blocks their path. Thus the gasses soon overcome the bullet's inertia and push it ahead of them like a piston down the barrel and out the muzzle.

The barrel, in essence, is merely a pipe. Its interior forms, as the bullet advances, an increasingly larger combustion chamber, for the powders continue to burn, generating more and more gasses, all the way to the muzzle (unless a very fast-burning powder is used in a relatively long barrel) and the bullet keeps gaining speed all the way. Thus the longer the barrel, the higher the velocity of the bullet will be as it leaves the muzzle.

A series of spiral grooves is cut inside the barrel, leaving ridges of steel called „lands“ upstanding between them. As the bullet enters the barrel, the lands bite into it, forcing it to spin around its axis, making it in effect a small gyroscope and vastly increasing its accuracy.

The bullet quits the muzzle at a speed of from 600 to 1,500 feet per second. As pressure in the barrel falls off, the brass case retracts somewhat, losing its grip on the chamber walls, and enabling it to be withdrawn from the chamber and ejected from the gun.

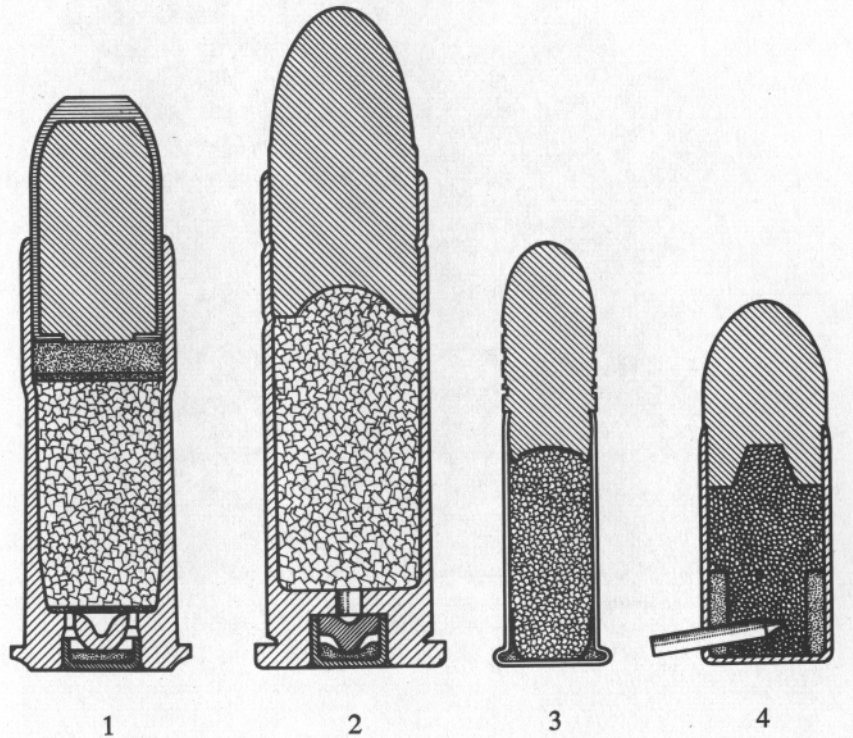
And this, in short, is how all handguns work. Designs vary as to how best to move the cartridges into the chamber or into line with the barrel for discharge, and to get the spent cases out again, but it must be done somehow. And although a target pistol and a pocket pistol may look nothing alike, they are and must be similar in their basic mechanical elements, for the same principles govern both.



Three .38 Special case heads. The one on the left is a live round, the center one a fired case, showing a deep imprint in the primer cup from the firing pin as it crushed the primer pellet against the anvil. The case on the right has had the spent primer removed to show the flash hole in the center and the floor of the pocket around it where the legs of the anvil rest. A Berdan case would have an integral anvil in the center of the pocket, with two or three small flash holes around it.

DRAWINGS

Group I-Cartridge Cutaways



1) The centerfire Berdan-primed cartridge forms the anvil as an integral part of the cartridge case, the primer itself consisting only of the cup and the explosive pellet. The „two hole Berdan;“ of which this 8mm Mle 1892 French service round is an example, has a flash hole on either side of the anvil, and our cutaway goes right through them. Other common Berdan cases have three flash holes. Note the jacketed bullet seated atop a lubricating wad.

2) The centerfire Boxer-primed cartridge has the anvil as a separate part of the primer assembly, and a single, centrally positioned flash hole communicating, through the floor of the primer pocket, to the combustion chamber. The cartridge shown is the .38 Special.

3) The rimfire has the priming compound distributed centrifugally around the full circumference of the hollow rim. Notice how infinitely more capable of withstanding high breech pressures the solid-head centerfire cases are.

4) This cutaway pinfire illustrates the notion adequately enough, but has its priming compound seated in highly unorthodox fashion. Most have the primer pellet and cup (open end upward) just under the point of the firing pin, and firmly embedded in a compressed paper wad which fills up the rear of the case.

TYPES OF HANDGUNS

For the past seventy-five years, novelists, journalists, and even jurists have used the terms pistol, revolver, and automatic with neartotal indifference. Novelists are of small consequence, but journalists and jurists have often left history in a horrid jumble. It would behoove us, lest we sin likewise, to sort out our terminology.

The generic term „handgun“ means any firearm intended to be fired in the hand rather than from the shoulder. It can be conveniently fired with only one hand, and often is, even though the fashion of late is to use both hands on the gun. Handguns are of two types: revolvers and pistols.

Revolvers

Revolvers are distinguished by their cylindrical magazines, bored usually with six chambers, each of which houses a cartridge. The topmost chamber will always line up with the rear end of the barrel at the front and with the firing pin hole in the breechface at the rear. If a handgun has a cylinder which revolves around a central axis and which is bored through with chambers that house the cartridges and contain them at the moment of discharge, it is a revolver.

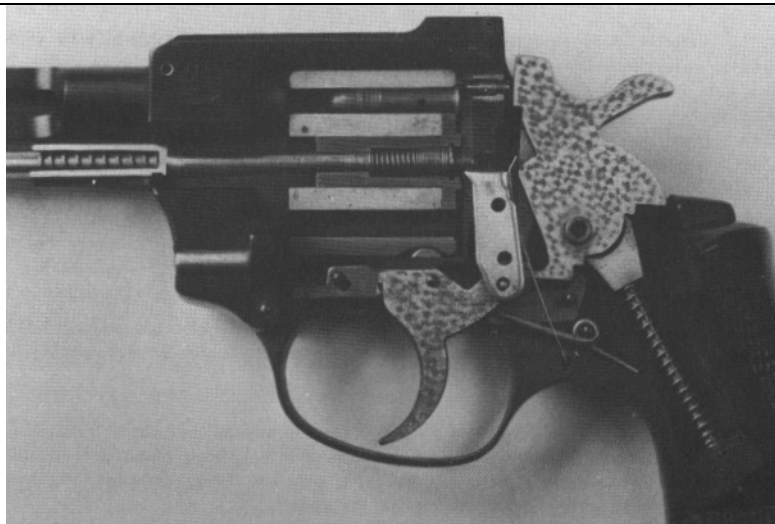
Either cocking the hammer or pulling through on the trigger of a modern revolver will unlock the cylinder and rotate it one-sixth of a revolution, bringing a fresh chamber topside and locking

it in line with the barrel and firing pin. When the hammer falls the firing pin is driven into the primer, thus discharging the cartridge.

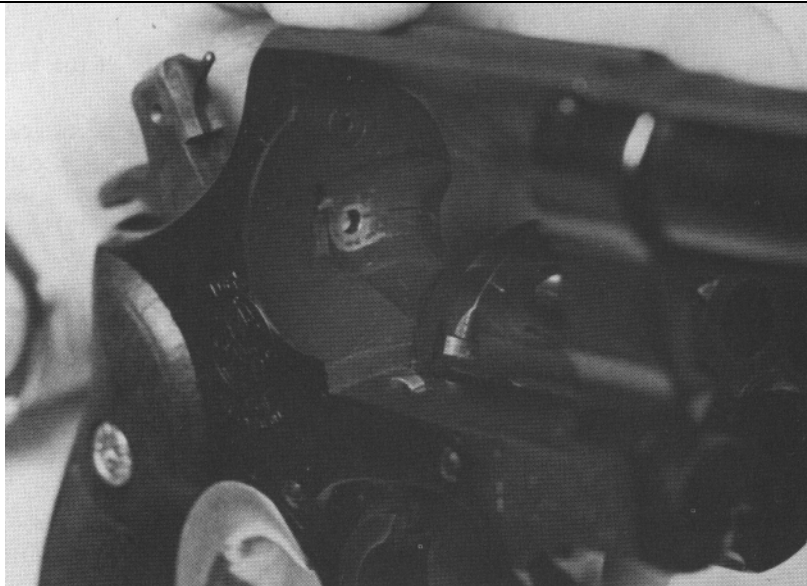
Most revolvers are either single-action or double-action, with double-actions usually considered the more modern of the two. The hammer of a single-action revolver must be manually brought to full cock position before it may be fired by pressing the trigger. Squeezing the trigger while the hammer is down accomplishes nothing whatsoever. A double-action revolver, on the other hand, may be fired merely by pulling the trigger through a distance of about one-half inch. The hammer need not be cocked beforehand, although most double-action revolvers may be fired single-action fashion by thumb-cocking the hammer and then squeezing the trigger - if the shooter so desires.



The revolver carries its cartridges in a cylinder bored longitudinally with multiple chambers, one for each cartridge. Each chamber must be rotated into line with the barrel, and locked there for firing. The six-toothed ratchet in the center of the cylinder is engaged to effect rotation.



Cutaway Arminius revolver, made by Weihrauch in Melhrichstadt, has a frame-mounted firing pin placed to crush the rim of the .22 (rimfire) cartridge in the top chamber against the rear face of the cylinder when struck by the hammer. Ratchet teeth have been cut away, but the hand, mounted on the trigger, is clearly visible. Note cylinder stop, ahead of and above the trigger, locked into the notch in the cylinder, and the springs that activate or return each part.



The standing breech of a revolver takes the full rearward thrust of cartridge discharge. Firing-pin hole is visible at top. Beneath it, centered, is the hole into which the ejectorrod tip locks to secure the cylinder in the frame. The hand, which engages the cylinder ratchet to effect rotation, moves in a slot just to the left of center. In the floor of the frame is the cylinder stop, which secures the topmost chamber in line with the barrel.



Single-action revolvers like this Colt „Peacemaker“ cannot be fired until the hammer is thumbed back to full cock position.



Double-action revolvers like this Colt Trooper .357 may be fired merely by pulling through an the trigger, though usually they may be thumb-cocked if the shooter so desires.



People like all sorts of handguns, as this random pile awaiting testing at the Birmingham Proof House shows. We find two big-bore Ruger single-actions, two double-action Smith & Wesson revolvers, and the Smith & Wesson 9mm M39 automatic pistol.

Pistols

The term „pistol“ is a broad one by any definition, and is popularly used to refer to any handgun, revolvers included. In what is considered refined usage, however, revolvers are a type apart, and „pistol“ means any single-shot, double-barreled, semiautomatic, or repeating handgun except revolvers but including a myriad of freak types.

We are concerned primarily with semiautomatic pistols, also termed semiautos, autoloaders, or self-loaders. Most people simply call them automatics, and this suits us fine, although the purist will insist that the true „automatic“ pistol functions like a machine gun—it keeps firing as long as the trigger is depressed until the magazine runs empty—whereas the semiauto, which is what we are interested in, requires a separate squeeze on the trigger to fire each shot.

The semiautomatic pistol, or just „automatic“ if you prefer, is distinguished by the following characteristics. The firing chamber is integral with and is machined into the rear end of the barrel, and thus will accept but one cartridge at a time. In order to fire, a round must be fed from the cartridge reservoir, or „magazine,“ into the

chamber, and after firing, the empty case must be withdrawn from the chamber and ejected from the gun before a fresh cartridge can be introduced into the chamber. In order to perform these functions the gun mechanically harnesses the vast energy of cartridge discharge.

A typical automatic will have a mobile breechblock assembly mounted just behind the barrel and held forward by spring tension. When the shot is fired, the gas pressure in the chamber and barrel presses the case rearward, and the case in turn propels the breechblock back, compressing its spring.

A hooklike part called the extractor, engaging the rim of the case, ensures that it does not stick in the chamber. When the case is fully withdrawn it impacts a fixed lug on the frame (the static lower part of the gun that forms its handle) which simply flips the case out through the ejection port.

At this point the breechblock or slide has reached the rearmost limit of its travel on the frame, and is now propelled forward again by its spring. On the return trip it strips the top cartridge out of the magazine and pushes it into the chamber. As the cartridge seats home, the extractor snaps over the rim of the case head.

Backtracking a bit in this sequence of operations which is called the firing cycle, we note that the slide, on its rearward trip, performed another function. It carried the hammer or striker back to full cock position, thus readying the gun for the next shot as soon as the cartridge was chambered. With a revolver, the unlocking, cocking, feeding, relocking, as well as extraction and ejection steps of the firing cycle must be performed manually by the shooter. The semiauto does all this, we might say automatically, leaving the pressing of the trigger the only task for the shooter to perform from shot to shot.

During the course of this book we shall examine the development, design, and historical significance of many different types of handguns. The revolvers will all share in common the revolving cylinder, carrying the cartridges in individual chambers, each of which must be brought into line with the barrel for firing. The semiautos will all carry the cartridges in a magazine, will have a single chamber in the rear of the barrel, and will have mobile components set in motion

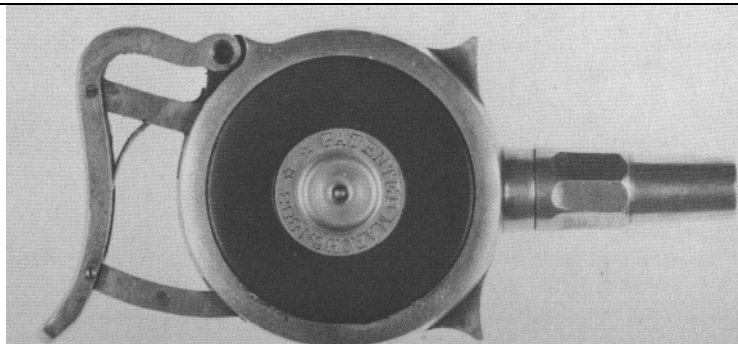
by the pressure of cartridge discharge which will clear the empty case from the chamber and feed a fresh round from the magazine into the chamber.



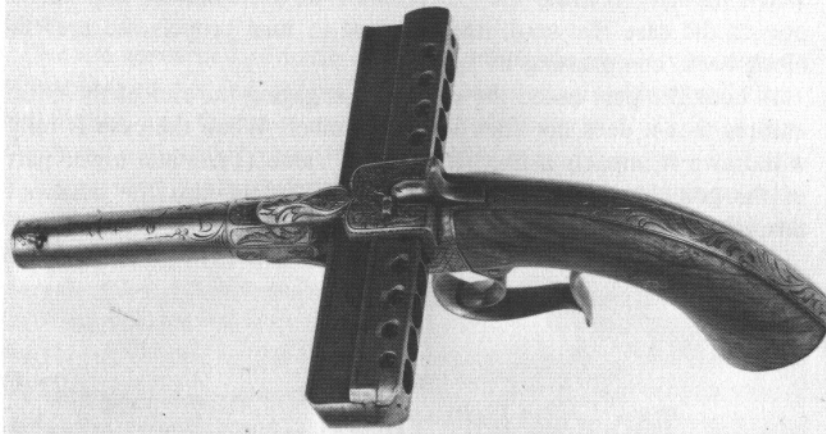
This 1934 Beretta is ready to fire, with a round in the chamber, several more in the magazine, and the hammer cocked. Trigger pressure will be transmitted via the trigger bar to the rocker piece, to the sear, freeing the hammer to fall, striking the firing pin in the slide. Note rifling grooves in barrel, extractor engaging groove on a cartridge case head, feed ramp leading from chamber to magazine, and recoil spring mounted under the barrel.



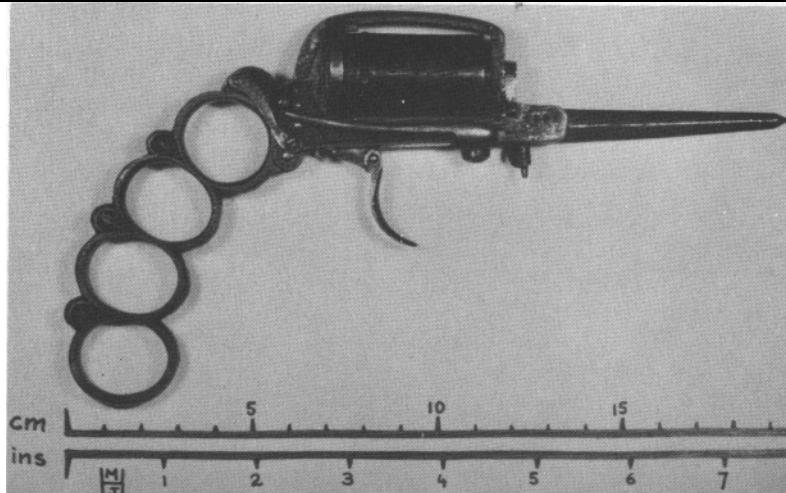
This single-shot, hinged-frame target pistol, made by Dr. Karol Jurek of Birmingham, England, is rigorously classic, a direct descendant of eighteenth-century dueling pistols.



Chicago palm pistol of the 1880s was fired with the barrel protruding from between the index and major fingers when the fist was tightened, depressing the firing lever. It carried its cartridges in a flat cylinder with the chambers drilled radially (on the pattern of wheel spokes). It is better classified as a freak pistol than as a revolver.



The French gunsmith Jarre is sometimes referred to as the joker who unrolled the cylinder. Be that as it may, his 9.5mm pinfire „harmonica pistol“ is certainly no revolver. Magazine capacity was 8 and 11 rounds respectively an two specimens examined. The cartridge pins, held captive by the cover plate, secured the rounds in the magazine, which was probably carried detached from the pistol.



L. Dolne, a Belgian inventor, put this ultimate weapon an the market in 1875. It folds up in all directions for pocket carry, and was soon dubbed the Apache revolver, „Apache“ being Parisian slang for „thug.“ The more or less conventional 7mm pinfire cylinder would enable it to be classified as a revolver, but the lack of a barrel and the profusion of repugnant gadgetry brands it as a freak.



The semiauto has to extract and eject the empty shell from the chamber, and load in a fresh round from the magazine each time it is fired. Note the slide at full recoil, and the empty shell in the air above this Model 90 Beretta.

THE HANDGUN'S MAJOR PARTS

The primary structural unit of a handgun is the frame. It is to the frame that all other parts are attached, and the French word for it, very aptly, is *carcasse*.

On a revolver, the barrel is screwed or pressed and pinned into the front of the frame, the grips are attached to the bottom rear end, the action components are housed in the lower and rear portions of the frame, and the cylinder fits into a cutout called the frame window.

The frame of an automatic is sometimes called the receiver. It houses the magazine and most of the action components. The slide or breechblock is usually mounted on rails at the top of the frame, and the barrel is attached to the frame somehow, either directly or by means of a linkage or cam system. The Luger (named for Austrian-Born Georg Luger), one of several exceptions, screws the Barrel into a floating upper receiver that travels in the frame, or lower receiver.

The Barrel has already been described inside and out, but either end still wants attention. The front end-the dangerous end-is called the muzzle, while the rear end, as well as those portions of the gun adjacent to the rear end of the Barrel, is called the breech.

The breechblock is whatever part of the gun supports the base of the chambered cartridge. On revolvers it is usually the area of the frame just behind the cylinder, called the standing breech. On most automatics it is the front face of the slide or bolt.

The action is the ensemble of multitudinous little parts that do the job of firing the gun and expelling the empty case. The main ones are the trigger, which the shooter presses with his finger, and the hammer or striker which then falls and impacts either the firing pin or the primer itself to fire the cartridge. The sear (catch) acts as an intermediary between the trigger and the hammer, if one is needed.

Revolvers also have a hand and a ratchet to rotate the cylinder and a bolt or cylinder stop to lock each chamber into line with the barrel. Automatics have a drawbar to route trigger pressure around the magazine to the sear, and a disconnector to disengage the drawbar from the sear while the slide is in motion, so that the sear can hold the hammer at full cock when the slide returns forward. Releasing the trigger allows the drawbar (also called the trigger bar) to snap back up and reengage the sear, so that the next shot may be fired when the trigger is pressed again.

Practically every moving part in a handgun requires a spring - some springs service several parts. We shall consider three. The mainspring powers the hammer or striker; the trigger spring returns the trigger to a forward position (into reengagement with the sear) when the shooter relaxes his finger after firing; and the recoil spring of an automatic returns the slide or breechblock forward again after it has reached the rearmost limit of travel during recoil.



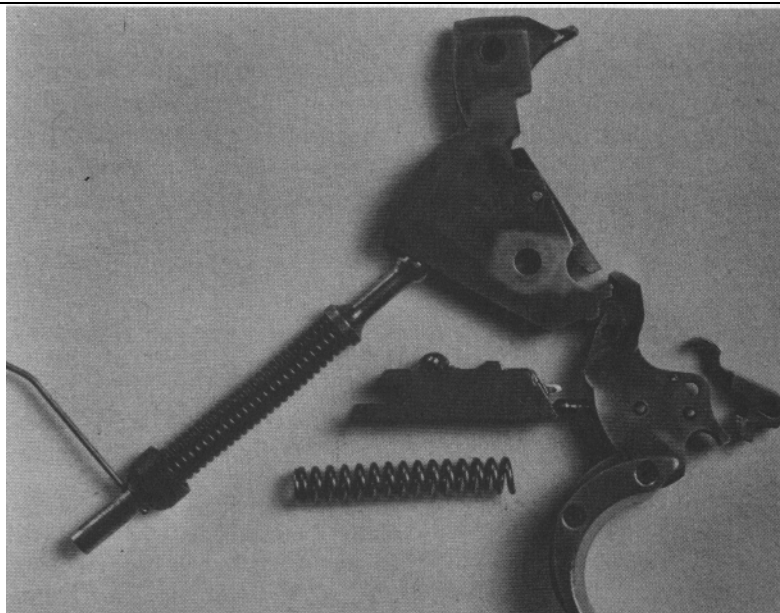
The skeleton of a handgun is its frame. After a few dozen machining operations, and the attachment of a basket of parts, this forging will be a Colt Mark III.



The frame of an automatic is sometimes called the receiver. Here a stripped frame, and a completed pistol, both by Waffenfabrik Bern, the Swiss Federal Armory. The topmost part of the frame, projecting out just above the „S,“ is the ejector, which butts the fired case out through the ejection port as the slide recoils back.



Basic components of a simple semiauto pistol are (top to bottom): slide; striker, with spring and guide rod; barrel; recoil spring and guide; frame; magazine. Essentials like the trigger, sear, disconnect, safety, and magazine latch are in the frame. The extractor is in the slide, and the nose of the striker does double duty as an ejector.



Components of the firing mechanism of a double-action revolver work off the trigger. The S & W consists of (clockwise from top) hammer, trigger, cylinder latch, rebound slide and spring, and mainspring. The hand, the safety bar, and the cylinder-stop spring are not shown.



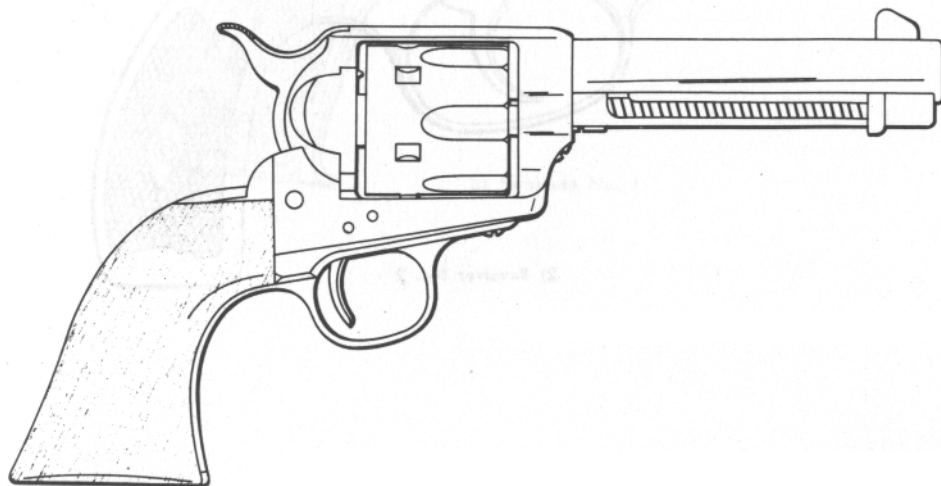
Colt gets the same job done with a quite different parts layout. Lower leg of mainspring tensions the rebound lever, which rebounds the hammer, returns the trigger, tensions the hand, and lifts and trips the cylinder stop. Hand is shown above trigger, while safety bar and linkage are between trigger and hammer.

There are other parts of course, and different guns put them together in different ways. Later chapters explore the various possibilities in fatiguing detail, but in order to give a quick glance at what may come out in the wash when an engineer gets through designing a new handgun, we here present four hypothetical handguns-two revolvers and two automatics-in a random hodgepodge of external features:

REVOLVER NO. 1

| | |
|-----------------|---|
| Single-action: | Colt Peacemaker, S & W M14, Ruger, Dakota, many early revolvers |
| Gate-loading: | Colt Peacemaker and copies, Ruger, French Mle 73, Webley RIC, Colt Lightning, Iver John son (some models) |
| Rod ejector: | Colt Peacemaker, Ruger, etc.; Webley RIC, French Mle 73, H & R M949, IJ M50A |
| Exposed hammer: | All single-action and most double action revolvers |
| Square butt: | Most service and target revolvers |

1) Revolver No. 1



Group II-Composite Pistols

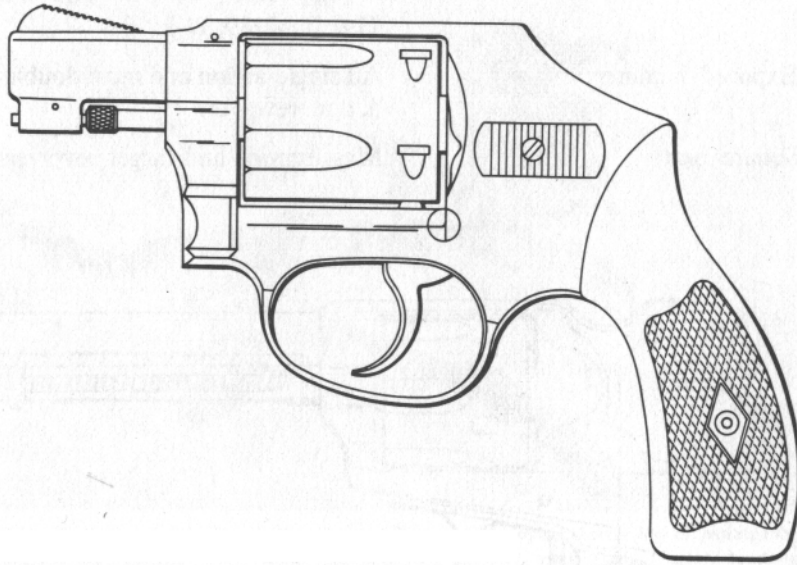
REVOLVER NO. 2

| | |
|------------------------|---|
| Double-action only: | S & W Safety Hammerless, S & W Centennial, Enfield No. 2 Mk. 1*, Adams M1851, many pepper boxes |
| Concealed hammer: | S & W's above, plus copies; many Belgian revolvers |
| Simultaneous ejection: | All side-swing-cylinder or break open revolvers |

Round butt:

Webley Mks. I-V, Colt Lightning, Webley RIC and some WG models, some Merwin & Hulberts, many Belgian revolvers, most pocket revolvers

2) Revolver No. 2



SEMIAUTOMATIC NO. 1

No external hammer:

Manufrance, MAB Models C, D, and E, early Colts, Browning Models 1900, 1903, 1910, 1922, Mauser 1910, Sauer 38(H), many pocket pistols

Recoil spring under barrel:

Unique, Beretta, Mauser 1910, Colt, P-35, and variations of both, S & W M41 and M39

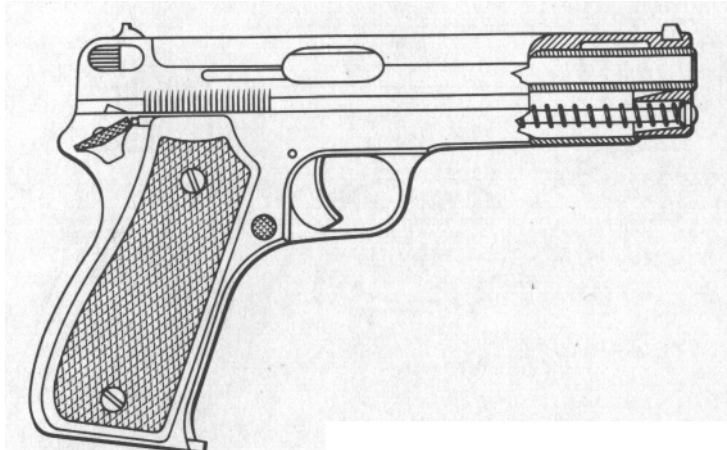
Lateral, frame-mounted magazine latch:

Star, MAB, Colt, P-35 and variations, Star, Llama, PPK, etc. Manual safety on frame: MAB, Unique, Colt, Star, Llama, P-35, Browning 1900-1922, etc.

Manual safety on slide:

PPK, P-38, HSc, Sauer 38(H), S & W M39

3) Semiauto No. 1



SEMIAUTOMATIC NO. 2

Barrel enclosed by slide:

Browning, MAB, Colt, Unique, Astra, Llama, Star, PPK, HSc, and many others

External hammer:

Colt, P-35, P-38, PPK, MAB R and P-15, MAC 50, Llama, etc.

Double-action trigger:

PPK, P-38, Little T'om, HSc, Sauer 38(H), S & W M39, Beretta M90, Astra Constable, Makarov, Stechkin, etc.

Recoil spring encircles barrel:

MAB, Browning 1910 and 1922, PPK, HSc, Beretta M90, Astra Constable, Makarov, etc.

Magazine latch at heel of butt:

P-38, Ruby, Unique, Makarov, Beretta M1934, SIG P210, etc.

Grip safety:

Browning 1910 and 1922, Colt 1911 & A1, Luger 1900 and 1906, Swiss M1929, etc.

4) Semiauto No. 2



SAFETY

A gun does not cause accidents; people cause accidents. The fact remains, however, that some guns are easier to have accidents with than others, and none more so than the handgun. The reason for this is the pistol's abbreviated length - on the order of 8 inches for most of the lot-which enables it to point in all sorts of inopportune directions if extreme and constant diligence is not applied to keeping the muzzle pointed toward a safe background.

When a novice picks up a handgun, he usually manages within the first thirty seconds to cover every point of the compass and every direction from straight up to straight down, all quite unconsciously, and thereby puts anyone in the vicinity in mortal danger.

Add to this the fact that anyone who handles pistols frequently will probably have them discharge unintentionally an occasion, and the situation becomes grave. In order to hold damages to a minimum, a number of pragmatic rules of safety have evolved to which men who know handguns adhere religiously. Scrupulous observance of them, if it does not eliminate unintentional discharges altogether, will at least eliminate those most likely to cause injury. Violation of any of these rules marks the perpetrator, in the eyes of experienced handgunners, as either ignorant or stupid, and dangerous on either count. The following should be committed to memory:

- (1) A handgun is always considered loaded and dangerous, even if it has just been examined and proved empty.
This means no horseplay under any circumstances.
- (2) Never allow the muzzle to point at any person or object you are not prepared to see shot.
Read this one again. It is the cornerstone rule, and when all else fails and the gun discharges unintentionally, this one will let you off with nothing more vital than your ego punctured. Watch the muzzle constantly. Know where it is pointed at every instant.
- (3) Never handle another man's weapons without asking per mission.
- (4) Never pick up a gun without immediately opening it and checking it for cartridges, even if the person handing it to you has just opened it and pronounced it safe. Not to recheck a gun that has just been checked by someone else is a serious breach of firearms etiquette. If you do not know how to open a gun, check it for cartridges, and make it safe, either do not handle it or have the owner open it and make it safe for you.
- (5) Keep your finger out of the trigger guard until the gun is on target and ready to fire.
- (6) Never fire unless the target is positively identified and the ground beyond it has been evaluated to the extent that you know exactly where the bullet will stop.
- (7) If corrected on a point of firearms safety, apologize and thank whoever corrected you, even though his approach may have been less than diplomatic. To react otherwise brands you as too egotistical to use firearms safely.

These are the foundation rules. There are many others, but they flow from these.

Firearms safety is really just a matter of common sense, but it requires uncommon alertness to avoid a slip. The consequences, legal and moral, of unintentionally causing injury or death with a firearm are severe. Keep them constantly in mind. Never trust a gun, for it cannot think for itself. You must think for it, and while it is in your hands, that is a full-time job.

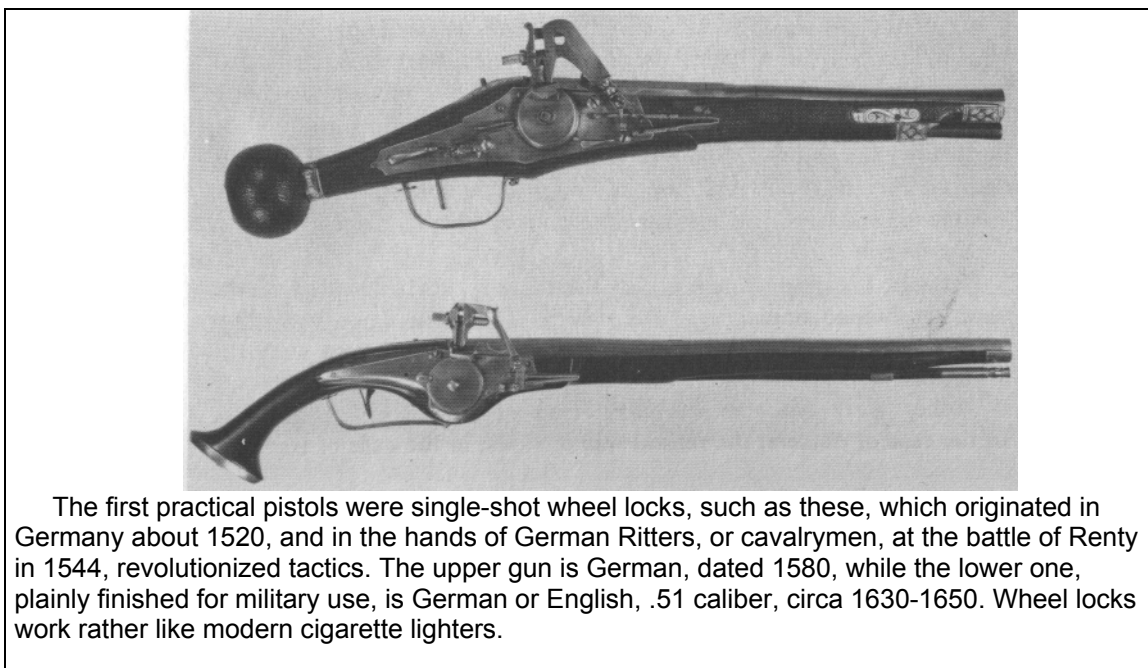


Safe carry with a revolver is cylinder out, carried by the topstrap. With a semiauto, it is slide locked back, magazine out. Unless holstered or cased, this is the only acceptable way to carry it.

THE MAINSTREAM OF HANDGUN HISTORY

FROM THE FIRST day of their development man has sought to increase the firepower of his sidearms. The fact that the handgun was originally a cavalry weapon meant that it not only had to be fired onehanded, but whatever recocking or recharging system it used also had to be operable with only one hand if the affray was not to degenerate to swordplay after the first shot.

To meet this requirement, pistols were developed with two or more barrels, firing several shots, sometimes simultaneously. Various attempts at breechloading date from the eighteenth century. And some gunsmiths were thinking even farther ahead. In the Royal United Service Museum, Whitehall, London, is displayed a snaphance revolver, unmarked but dated by scholars at circa 1650, in which cylinder rotation is effected by cocking the hammer, just as it would be, two centuries later, in the first Colt revolvers.



The first practical pistols were single-shot wheel locks, such as these, which originated in Germany about 1520, and in the hands of German Ritters, or cavalymen, at the battle of Renty in 1544, revolutionized tactics. The upper gun is German, dated 1580, while the lower one, plainly finished for military use, is German or English, .51 caliber, circa 1630-1650. Wheel locks work rather like modern cigarette lighters.

But most of these early designs were delicate, difficult to repair, and prohibitively expensive to manufacture by the handwork methods of the day. The practical pistols, those widely distributed and widely used, were muzzle-loaders, with either one barrel or two, and so it remained through the middle of the nineteenth century, spanning the wheel lock, flintlock, and caplock eras.

In this stage of its development the pistol usually fired the regulation musket ball ahead of a half charge of powder. Later, when paper cartridges became common, the pistol shooter, if out of shortcharged „cartouches,“ simply bit the end off the musket cartridge, poured about half the charge down the barrel, and threw the rest away. This was called „bleeding“ the cartridge.

Bore diameter, as we have noted, was generally that of the musket, which had by then been pretty well standardized at about .80 caliber (.8 inch). As practicality and economy dictated, military handguns were plain, rugged, massive, unpretentious, and unlovely things. But many of the pistols that have come down to us from this era, used less and prized more, were produced by men who were artists as much as gunsmiths. They turned out a very small number of weapons, painstakingly built, often an special order and to meet the artistic fancies of the customer. Some of these are veritable pieces of jewelry, and the French Army Museum, although their collection of modern handguns is distressingly meager, offers an admirable display of these ornate weapons.

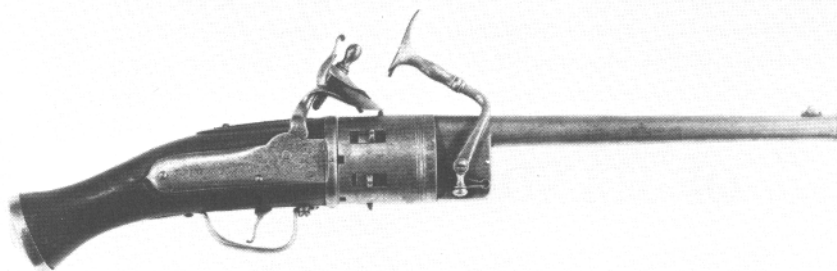
Between the crude reliability of the military horse pistols and the velvet-cushioned opulence of the oeuvre d'art guns came two other types during the flintlock and early percussion eras. These were the gentleman's traveling pistols on the one hand and dueling pistols on the other. Both types usually came from the maker in cased pairs. In the case of duelers, the reason was obvious; in the case of traveling pistols, the motive for purchasing two was simply to double the available firepower.

Duelers, as a class, displayed painstaking design and magnificent workmanship, but were utterly devoid of decoration. There was nothing about them to distract the eye or perplex the hand. No more coldly functional guns have ever been built, and if function is beauty, duelers are the most beautiful of handguns. Their lines are clean, grips are carefully angled and tightly checkered, trigger pull is faultless, and lock time as fast as technology permitted. Finally, and most importantly, balance-when the gun came up, it came up on target.

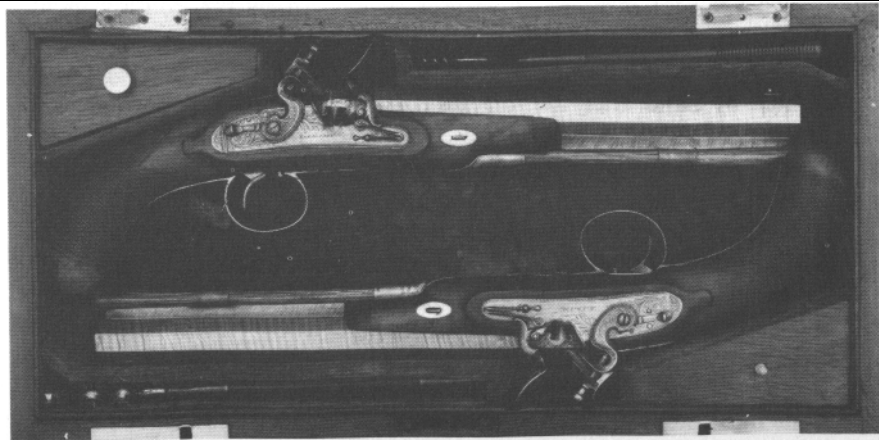
A traveling pistol, by definition, is whichever one chooses to travel with, and since no gentleman of the eighteenth century, no English gentleman in particular, would have considered bestirring himself unarmed, the weapons in use doubtlessly ranged from pocket pistols to horse pistols. As a norm, however, the typical traveling pistol of the early and mid eighteenth century was a formidable handgun. Of „greatcoat pocket“ size, it had a six- to eight-inch barrel and fired a half-ounce or heavier ball. Somewhat smaller than a horse pistol, and of considerably better workmanship, it was to some extent a predecessor of the duelers of the latter half of the century. Though the trigger pull and lockwork in general were not as refined as the duelers' would be, there was no functional scruple against decoration. The guns were as lavish as the owner liked or could afford. These imposing weapons were chosen, in their day, almost to the exclusion of smaller pistols for the simple reason that they were used, and used often, to protect their owners' lives. To take an example, during a two-week period early in 1720, one noble sort who lived near London, Lord Chandos, found himself combating highwaymen on three separate occasions. On the first instance, he was attacked by five robbers; the following week he was set upon by an undetermined number of highwaymen; and the day thereafter he beat off three rogues who were plundering the Kings mail. In all these embroglios the remarkable Lord Chandos came off the victor. No pocket pistols for him. As the noted arms scholar John Nigel George observed, „the desire to possess a really effective weapon varies exactly in proportion with the probability of being called upon to use it.“

The need for increased firepower, if ignored by the military mind of the day, was more than self-evident to civilians. Some of the traveling pistols were of over-under type, the barrel assembly being rotated by hand after the first shot to bring the loaded lower barrel topside for firing. A pair of these gave four shots without reloading, which was infinitely better than two, considering that highwaymen worked in groups.

It could not have been long before someone realized that there was no need to stop with just two barrels per gun. Indeed, guns with clusters of barrels, anywhere from three to fifteen or more, dated from the Middle Ages. The idea was no novelty, but the type of weapon that best expressed it, which we now know as the pepperbox pistol, did not become widely used until after the percussion cap came into common use, that is to say, after about 1825. Early pepperboxes had the barrel assembly rotated by hand for each shot. One of the first to have barrel assembly rotation accomplished mechanically as the hammer was cocked was the Lang, which was invented by Joseph Lang, a London gunmaker, probably very shortly after 1830. The Lang-type pepperboxes were soon superseded by the double-action-only type which remained popular an through the 1860s.



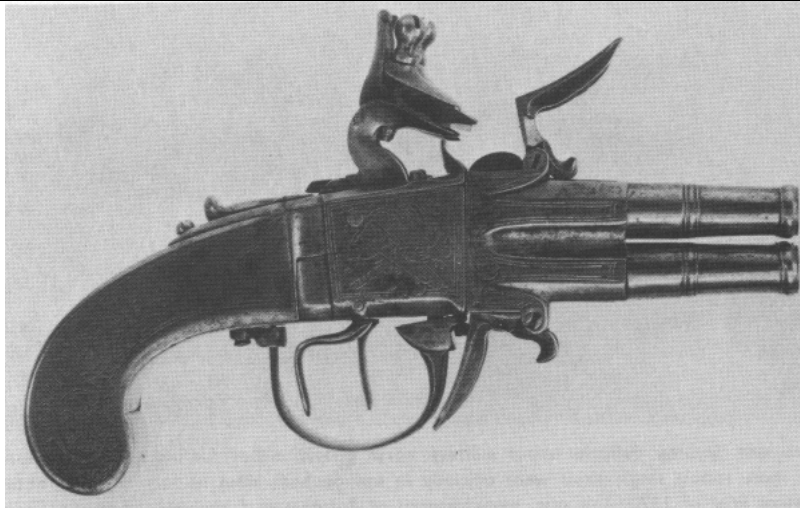
This .52 caliber snaphance revolver, circa 1650-1700, similar to the Whitehall gun described in the text, came to Boston with early emigrants, and is displayed at the Winchester Museum.



Pistols reached their aesthetic and functional peak, in the opinion of many scholars, in the English flintlock duelers of the middle eighteenth to early nineteenth centuries. This brace of .50s by 1. Adams, from about 1820, is classic and faultless, with its clean lines, heavy barrels, and lack of distracting decoration.



Greatcoat pocket, or traveling, pistols were shorter than duelers, sacrificing balance for convenience, but struck a heavy blow. In examples such as this magnificent set of T. Hill flintlocks, they were quite accurate and very reliable.



Four-barreled, hand-rotated pocket pistols of the Segallas type were popular throughout both the flintlock and percussion-lock periods. The barrels, about .32 caliber, were rifled, but the guns lacked sights and hence accuracy. Both punch and precision were sacrificed for firepower, which, since they were reliable, their users regarded as an acceptable trade.



There was nothing delicate about military horse pistols, either flintlocks or percussion, and these robust single shots were officially in use on both sides as late as the FrancoPrussian War of 1870. This one, manufactured at Potsdam and probably converted from flintlock, replaced the frizzen with a safety that enabled it to be carried loaded and capped without danger.



By 1830 the flintlock had been replaced by the percussion lock. These .56 caliber target pistols by LePage of Paris, made in that year, offered sights, adjustable triggers, and typical French styling, boxier and more ornate than the English.



Two-barreled, hand-rotated arrangements like this Johannes Korb flintlock were among the earliest practical repeating pistols, but their expense denied them wide distribution.

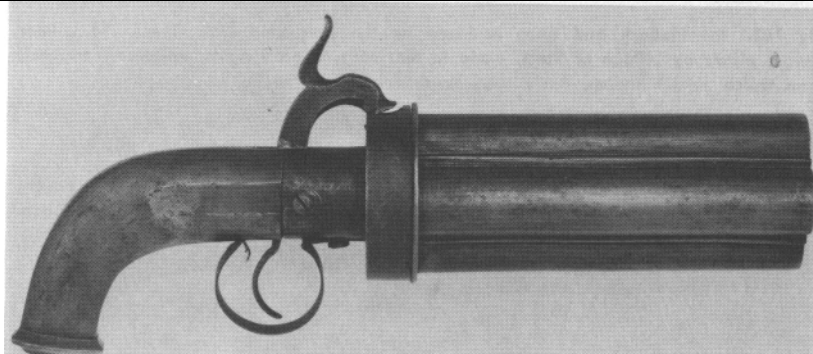
Though the pepperbox offered a great increase in firepower, it was always an arm of the ignorant, for its defects considerably outweighed its advantages, and its superior firepower was in most cases ineffectual. Perhaps the least of its faults was that its mechanism was delicate, quick to go out of repair. The percussion caps were set at right angles to the bore, thus necessitating a hammer that struck from above rather than from behind. So there sat the hammer, obstructing the line of sight, rather like a loaf of bread laid atop the gun. The best that could be done in the way of sighting was merely to extend the weapon toward the target. Then the heaviness of the trigger pull would invariably cause the gun to pitch a bit, further impairing its accuracy. Finally, this clustering of multiple barrels on one handle could only go so far before the gun became untransportable. And the more barrels, the smaller the caliber for the same reason. Most pepperboxes had no more than six barrels, and most were about half the caliber of contemporary single- or double-barrel pistols. The pepperbox, in sum, was fragile of mechanism, feeble of charge, and incredibly inaccurate. It was not the answer.

The answer, or at least an enormous step toward one, came in 1835-36, when Samuel Colt patented his revolving pistol in Britain and the United States. Though legend credits Colt with the invention of the revolver per se, Colt himself did not claim this distinction, at least not in his patents. What he did claim, and succeeded in protecting by patent, were the internal mechanics by which the cylinder was revolved and locked in line with the barrel, although even much of this had been done centuries before by isolated gunsmiths. Colt's contribution, and it was an enormous one, was to make the revolver a practical weapon. His skill in designing a simple, reliable mechanism, his masterful and relentless efforts in propagandizing his product, and his perseverance in utilizing the latest techniques of machine manufacture in building it marked a new chapter in handgun history.

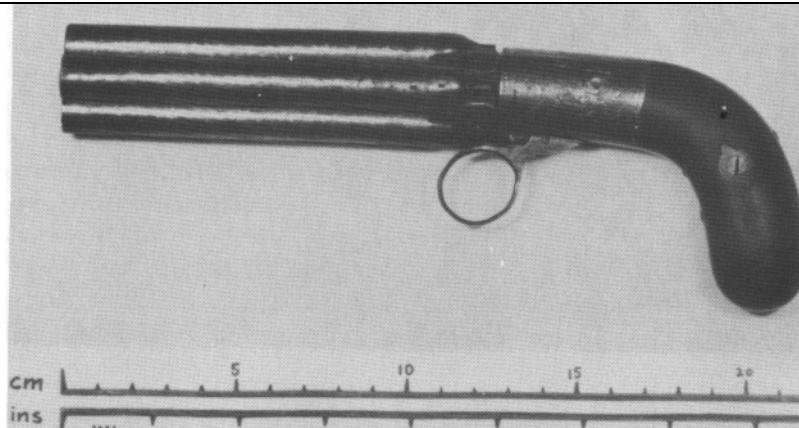
Though the early Colts were reasonably sturdy arms, quite accurate, and adequately powerful (the Dragoon models were extremely powerful), the shooter who still faced antagonists after his six shots were spent was in a definite fix. Reloading was slow and tedious. Each chamber had to be charged with powder and ball from the front of the cylinder, then a tiny percussion cap had to be placed on the nipple of each chamber at the rear. Colt, usually so progressive, for some reason adamantly declined to switch to metallic cartridges until it was too late (and Smith & Wesson had bought the patents he had turned down) and was still making frontloaders, and nothing but, at his death in 1862. For the first six shots though, the cap-and-ball Colt was quite a weapon. And still is.



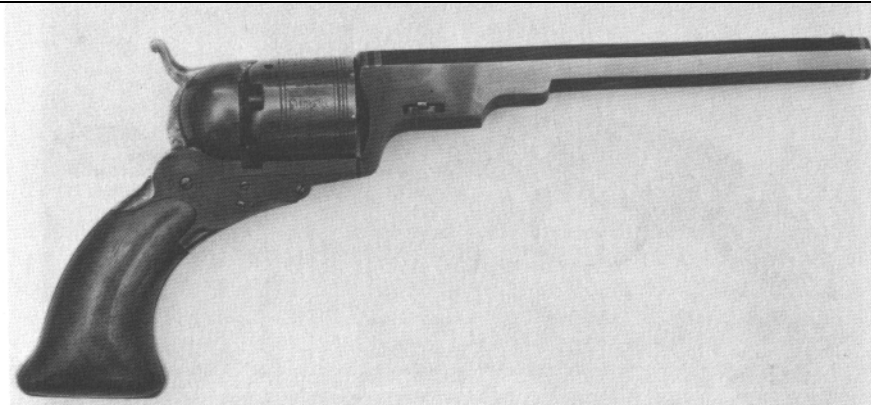
This cased pepperbox by Thomas Baker of London is among the finest of its type.



The pepperbox, in a manstopping caliber, became hopelessly cumbersome, as this fourbarreled, hand-rotated .55 of American manufacture (circa 1840) amply demonstrates.



The Belgian Mariette pepperbox is unusual in that its internal hammer strikes from the rear rather than from above. Still, its maker evidently felt that sights were not worth adding. This specimen carries much longer barrels than the usual Mariette.



Colt's .36 „Texas Paterson,“ introduced in 1836 and first blooded in the Seminole War, was the first practical combat revolver, though in comparison with later models it is somewhat feeble and fragile. Its folding trigger popped into view when the hammer was cocked.

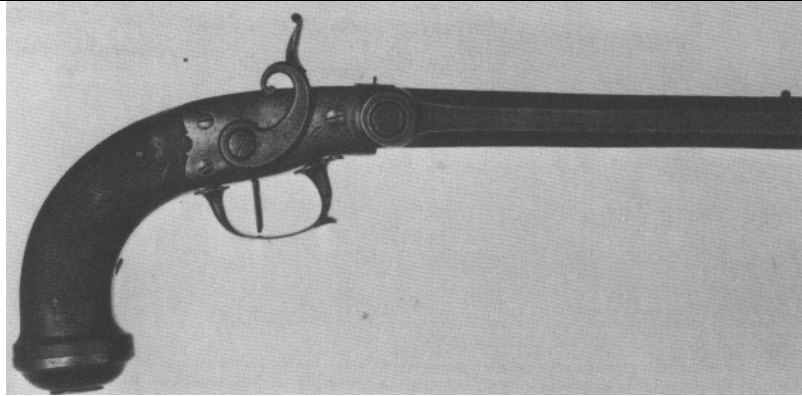
Though percussion revolvers found immediate popularity in America and in Britain, France let this whole era pass her by. The first French revolver of any note was the Lefauchaux-a pepperbox type in 1851, followed almost immediately by a seemingly unending line of true revolvers, all. chambered right from the start for the pinfire cartridges which Eugène Lefauchaux, the gunmaker, claimed had been invented by his father, Casimir, in 1836, while Colt had been taking out his first United States revolver patents. Old Casimir recognized the danger and annoyance of manipulating cartridges in three loose parts (powder + ball + priming cap) and was, with Houiller, whose patent was issued in 1846, the first to unite these elements in a self-contained, internally primed cartridge, fired when the Kammer struck a pin or needle which protruded through the wall of the brass case near the base. Pinfire ammunition, although rather fragile in handling, was a great step toward today's center-fire cartridges, and they were not long in coming. Houiller's 1846 patent covered a type of early center-fire cartridge as well as three types of pinfire, and the first center-fire revolver of which we have record was the Perrin and Dehnas of 1859. It seems quite clear, in retrospect, that the development of metallic cartridges was almost entirely a French undertaking.

It is almost impossible to find reliable ammunition for them now, but pinfire weapons, although out of production for decades and totally obsolete by modern standards, are still very interesting arms. They run the entire gamut from rifles and shotguns to pepperbox pistols; from diminutive .20-caliber revolvers to enormous ones in .60 caliber.

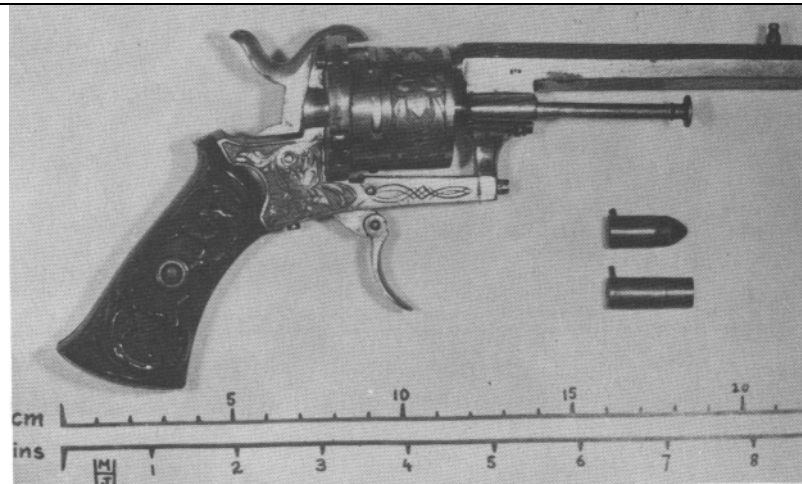
Although Lefauchaux began manufacture of his pinfire revolvers prior to 1855, and produced for the French Navy their 12mm model of 1858 as well as their later center-fire model of 1870, the United States clung to the old percussion-cap system for their regulation sidearms right through the Civil War of 1861-65 and well beyond. Even their latest efforts of that conflict - the Starr, the Remingtons, and the 1860 Colt New Army of the Union forces, and the Spiller & Burr, Griswold & Gunnison, and Le Mat (patented by Dr. Jean H. F. Le Mat of New Orleans) of the Confederates-were of the antiquated sort.

There were several reasons for this laggardness. First was the extreme technological conservatism of General James Wolfe Ripley, the Union Chief of Ordnance; second was the uncharacteristic myopia of Samuel Colt when the chance to chamber metallics crossed his desk; third, and most important, was that Smith & Wesson, who „borrowed“ and improved Louis Flobert's rimfire cartridge, also

bought, in 1856, Rollin White's patent for bored-through cylinders to chamber them. Thus from 1857 to 1869-the duration of the White patent-Smith & Wesson was the only manufacturer in the United States who could legally make a cartridge revolver, and they declined to make one with any combat potential, their most „powerful“ model, to use an unwarranted adjective, being a miniscule .32 rimfire. Therefore, although metallic cartridge carbines such as the .44 Henry and the .56-.52 Spencer played an important part in the later days of the Civil War, there were no battleworthy cartridge revolvers save for a sprinkling of imports from Lefauchaux.



This single-shot .64 Pauly of 1812 was probably the first metallic cartridge pistol made. The cartridge, turned from solid brass, had a conventional percussion cap nipple on its base, and was infinitely reusable.



Lefauchaux pinfires, the first practical cartridge revolvers, were hugely successful both militarily and commercially. This is a civilian pocket pistol in 9mm, for which both ball and shot cartridges were available. The folding trigger and unsupported ejector rod give the gun a deceptively fragile air.

The rimfire, like the pinfire, was essentially a transition cartridge, and has today fallen into disuse except in .22 caliber. While much cheaper to manufacture than the center-fire, the rimfire is restricted to relatively light loads, since its hollow case head ill supports high breech pressures. It is also nonreloadable.

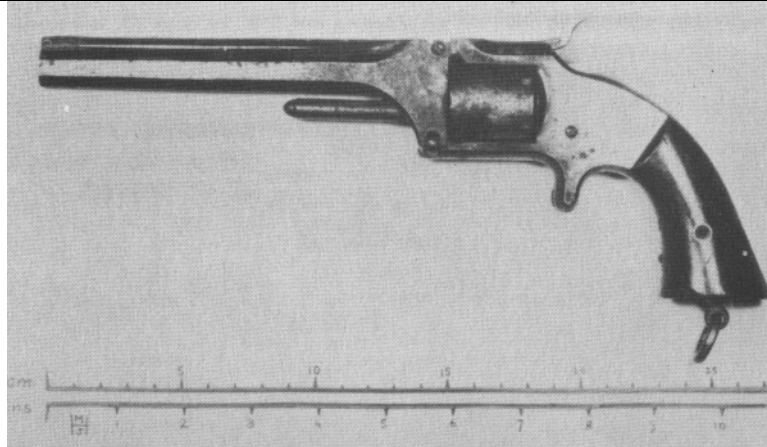
In 1873 the United States took a significant stride toward catching up with the rest of the world by adopting the famous Colt Peacemaker, a single-action, center-fire .45, and one of the most beautiful revolvers ever built. Although production was halted during and after World War II, it was resumed in 1956 at the insistence of television-inspired amateurs, who constituted by virtue of their numbers a potential market that Colt could no longer ignore.

Also in 1873, France adopted the regulation Chamelot-Delvigne revolver (the Saint-Étienne Mle 73), a good weapon, easy handling, and a step ahead of the Colt, since it was double-action. Although firing a large-caliber cartridge, it was underpowered nevertheless because of insufficient powder capacity in its too-short case - a fault common to all European revolvers. The Peacemaker, although of the same caliber, used cartridges twice as long.

During the decades from 1860 to 1880 bevy of armsmakers engaged in fierce rivalry, disputed patents, and vied for a share of the market. Among all this one can find the germ of origin of almost every revolver in use today. During this period were designed a multitude of action types and variations, and the first systems for rapid extraction and ejection. Heavy calibers were „in,“ and one might term this frenetic epoch „the 11mm Age“ (.44 and .45 calibers, for Anglo-Saxons) .



The pepperbox died slowly. This unmarked six-shot 7mm pinfire specimen, dating from the 1870s, was picked up by the Paris police.



Smith & Wesson's Model 2, a diminutive .32 rimfire, was the most „powerful“ gun they made for the duration of the White patent. Despite its manifest inefficacy, it enjoyed a certain vogue among officers in the American Civil War, and a substantial shipment went to France in 1870 for the Franco-Prussian War, in which the gun pictured probably took part.



The Model 1884 German officer's revolver, like its mate the Model 1880 Cavalry issue, both in 10.35mm and not replaced until 1908, were among the most finely built and thoroughly worthless guns of the revolver era. In addition to being single-action only, they were fitted with a thumb safety. In order to load or unload, the cylinder had to be disassembled from the frame. Nonetheless it was pressed back into service during World War One, and a few were encountered in the hands of German troops during the final days of World War Two.

In 1885, among other signs of progress, smokeless powder first made its appearance, giving, for equal volume, more power and less residue than traditional black powder. Cartridge-case capacity could therefore be diminished. Thus military and sporting rifles the world over, while retaining a long cartridge case, were sensibly reduced in caliber to take advantage of the higher velocities and longer-ranging powers the new propellants offered.

The 11mm Gras service rifle of 1874 was replaced by the 8mm Lebel of 1886, and foreign powers who watched developments in France quickly followed suit: 10.5 and 11mm arms such as the Vetterli, Remington, Springfield, Berdan, Mauser, Murata, Milanovitch, and Snider were promptly replaced by 8mm (.30 to .32 caliber) rifles such as the Krag-Jørgensen, Berdan, Mannlicher, Mauser, Moissin-Nagant, and Lee-Metford; by 6.5 or 7mms such as the Mannlicher, Spanish Mauser, and Arisaka; and the smallest of them all, the 6mm Lee Navy.

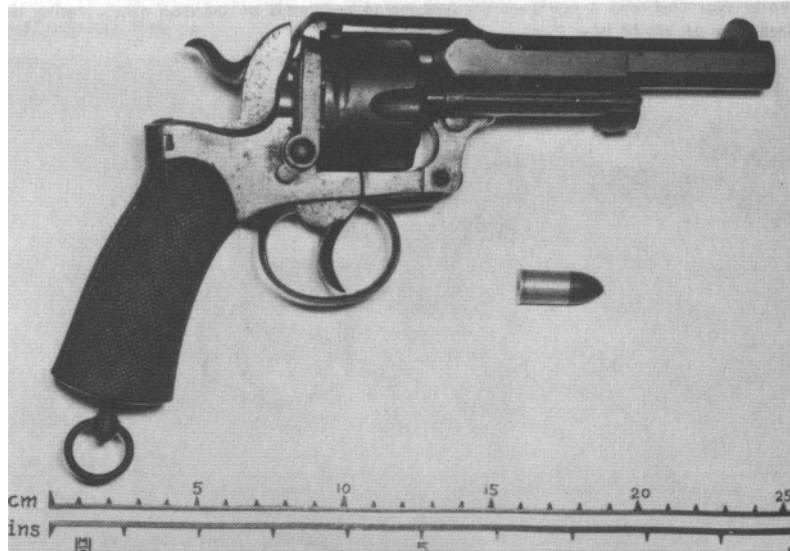
Except in Britain, revolver calibers tended to diminish in parallel fashion, fruit of ancient superstition dating from the era when musket ammunition was fired in the horse pistol, albeit with bled charges.

The excellent Saint-Étienne 8mm Mle 92 revolver (a center-fire by this time, of course) typified the trend as revolvers entered the 8mm Age, taking „8“ to comprise everything from 7.5 to 9mm. Translated to Anglo-Saxon measurements, we pass from .44 and .45 calibers to a new generation of .32s and .38s. The handgun, by virtue of this metamorphosis, gained in lightness, in portability, and sometimes in accuracy, but not in stopping power. And here began the great controversy: a heavy slug at low velocity or a light one at high velocity? This fundamental problem is not yet resolved, as we often have occasion to remember.

The 11mm Age, the 8mm Age-the two together form the Golden Age of the Revolver. No prohibitive legislation stifled their manufacture. Anyone with skill, talent, and perseverance could produce a new design, build prototypes, and see it through a pilot run. Sale and commerce as well were reasonably unrestricted, and each interesting model had its chance for sale, acceptance, and perhaps even official adoption.



The Mauser Zig-Zag revolver, so dubbed because cylinder rotation was achieved by tracking a frame stud along a system of interconnected Z-slots in the cylinder, was unsuccessfully proposed to the German military in 1878, and later sold commercially, in small numbers, in two models—a solid frame, shown here, and a tip-up that hinged at the back of the topstrap. Calibers were 10.6mm and 7.6mm.



This robust double-action, gate-loading, rod-ejection, large caliber service revolver of Belgian manufacture is typical of a generation of European military handguns.

By 1900 the revolver had reached its apex. There were still improvements to be made, certainly, but from 1900 to 1969 one finds them but in small, exceedingly small, details. The most recent Smith & Wesson, the new .41 Magnum, which sells for a steamy \$140, could just as well, as far as the mechanics go, have been built in 1900.

But, say those who will ever seek perfection, the revolver suffers from an original sin: it loses gas, therefore power, from the gap between the cylinder and barrel. If our century is resigned to the Situation, such was hardly the case toward the end of the nineteenth century.

Back in 1855 Smith & Wesson produced, in piddling quantities, a lever-action pistol in .31, .36, and .44 calibers, which proved a complete fiasco. After that the idea lay dormant for a few decades. Then in the 1890s there was a profuse hatching of magazine Systems - tubular, vertical, and circular—all designed to feed cartridges into a chamber-barrel ensemble, to wit the Schulhof, Krnka, Passler, Au, Turbiaux, Bittner, Schlagelmilch, and Dun-Latige designs. These in principle were an improvement over the cylinder arrangement of the revolver, but in most cases the maze of necessary levers had to be powered by the finger of the firer engaging a trigger extension, resulting in muscular fatigue, tremors, and a general loss of accuracy. The time required to activate this arrangement generally exceeded that of the classic revolver. And finally, because the permissible lever throw was limited in travel, the System worked only with

very short cartridges. Balancing the ledger, the advantages resulting from the suppression of the cylinder-barrel gap were largely overridden by the inconvenience and complexity of the new System. As it sometimes happens, we have here an example of progress in reverse.

Something else had to be found: a handgun without leaky joints, its discharge demanding, if possible, less muscular effort than a revolver. To these ends was born the automatic pistol.

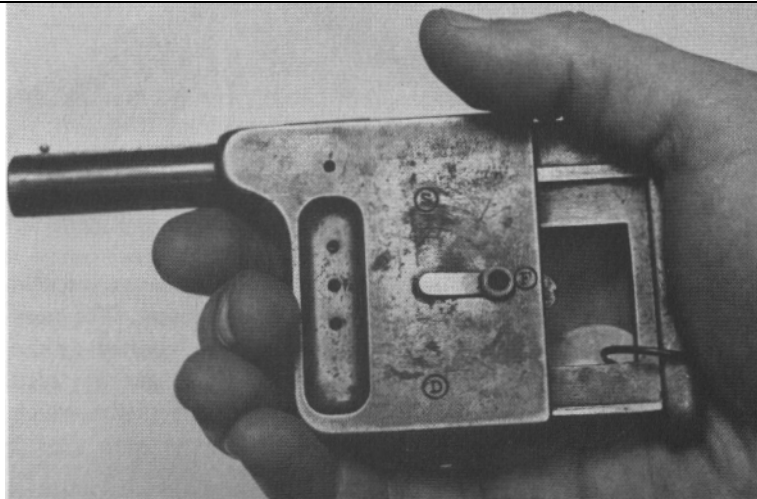
The first arm of this type which seems to have made it at least to the prototype stage is the American Lutze pistol, patented in 1874.



The Model 1882/29 Swiss service revolver in 7.5mm was typical of revolvers of the 8mm age, albeit a bit behind times with its one-at-a-time rod ejection system. This notwithstanding, it remained officially in service, alongside the Luger, until 1949, and its accuracy and light weight made it much appreciated by the noncoms to whom it was issued.



The Volcanic pistol was made by a company of that name in New Haven from 1855 to 1858, on a design that had been unsuccessfully tossed about by Hunt, Jennings, and Smith & Wesson. The Volcanic, both gun and company, later became Winchester. The lever-action concept for pistols was picked back up in Europe during the 1890s.



The „Le Gaulois,“ designed by Brun-Latrigue and manufactured by Manufacture d'Armes de Saint-Etienne, was one of the more practical of the manually operated repeating pistols of its era (1895). It carried its five feeble 8mm center-fire rounds in a vertical magazine, and was fired by closing the fist.

However, the first automatic pistol actually produced, it would seem, was French. Technically speaking, it was a moderate success but a long way yet from being a really practical weapon. The year was 1887, and this, the first self-feeding handgun, functioned on the same principle as most of our modern automatic rifles: gas was bled off at a point along the barrel, and made to operate a piston which functioned the action.

The weapon reeked of what we today, with the benefit of eighty years of hindsight, would regard as faults of design. But let us grant to its inventors, the brothers Clair of Saint-Étienne, that their pistol worked, and they pinch-hit for progress successfully enough to prove that what was essentially wrong with the weapon was its antiquated horse-pistol silhouette—long and heavy with an exhausting hang in the hand. The five-round magazine capacity was hardly worthwhile, and one-at-a-time recharging made it as slow as the refill as a revolver, indeed, slower than some. Finally, the moving parts were wont to gum up in short order. The Clair brothers command respect nevertheless, for few there are to match their patience, ingeniousness, and faith as well. They charted the route.

Resolutely clinging to the past, the French General Staff would entertain no discussion of the new arm, and hung onto the Mle 92 revolver (although they never built enough to go around) right up to the hard awakening of 1914, when they had to turn to foreign sources (principally Spain) for sidearms, buying virtually anything available at whatever price was asked.

Around 1895 the Central Powers began gaining experience in automatic pistols with the Mannlicher, Mauser, Borchardt, Schwarzlose, Bergmann, Frommer, and Roth, and beginning in 1900 Americans began to ponder seriously the Colt-built Brownings.

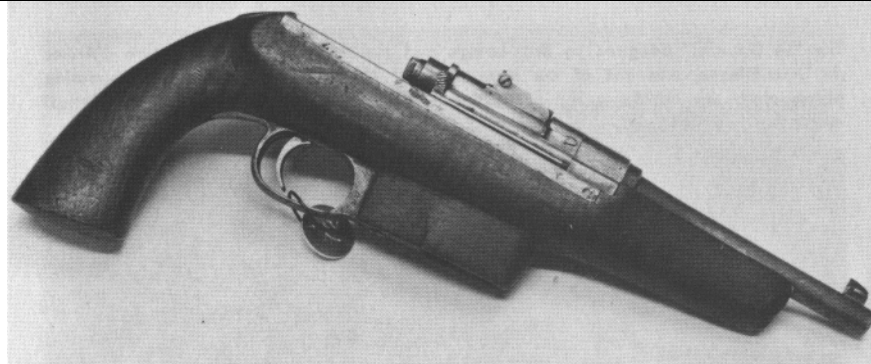
From this rigorous competition emerged a first generation of serious combat autopistols. Cumbersome they were, though, and at times hideous, particularly the Borchardt model of 1893, a really nightmarish, Martian-looking arm.

As early as 1900 some of the second-generation self-loaders began to appear, some truly marvelous guns among them which are still in service. Most of the systems tried are still in use somewhere: blowback, retarded blowback, blowforward, short recoil, even long recoil, the last most notably in the colossal .450 Gabbett-Fairfax Mars, an English monstrosity which launched a 230-grain slug at more than 1,180 feet per second, and which was finally given up as overpowered, ungainly, and needlessly complex. With the exception of the Mars, heavy-caliber semiauto development was almost entirely confined to the United States, or, putting it another way, some of John Browning's work concerned big-bores. Europe though was where the autos were really happening, and there the concentration was on calibers between 6.5mm and 8mm.

Surprisingly enough, in the face of this epidemic of autoloaders, the old cylinder gun staged a comeback. In addition to the busy propagation of what has come to be regarded as a fundamental verity in some quarters, that „the revolver never jams,“ an intense effort was made to ameliorate the wheel gun's firepower: henceforth most revolvers were endowed with ejectors which emptied all chambers at a single stroke, no matter whether the cylinder swung sideways out of the frame as in the Colt double actions, or the weapon broke at the top and hinged forward for loading, the system Smith & Wesson introduced in 1869.



Impressive oddities like this four-barreled, tip-down, double-action-only Lancaster .455/.476 enjoyed a certain popularity with British officers on colonial duty near the end of the last century. The revolver was still mistrusted by some—too jam prone.



Early semiauto pistol designers often clung to tradition by styling their guns in horsepistol fashion; indeed, single-shot, muzzle-loading horse pistols had been official issue only two decades before. This gun is recoil-operated and chambers a bottleneck cartridge of about 8mm. Unmarked and unidentified, it is probably German in origin.

Cartridge capacity as well was increased. In 1894 Pieper (Belgian), built a seven-shot revolver, and in order to compensate for that congenital fault of the leaky joint, adopted a cylinder that advanced to mate with the rear of the barrel before each shot (the Gilthay system, also previously used on the Collier flintlock revolver of 1818). Another Belgian, Émile Nagant, who furnished arms to the Russian military, perfected this system with a bullet seated deep inside a long cartridge case, the mouth of which came flush with the end of the cylinder. Since the front portion of each chamber was counterbored, the case actually entered the barrel partway when the cylinder advanced, and this formed a perfectly gas-tight seal. The results, however, were not worth the trouble, and the Nagant design is rarely seen today, although it was quite popular at the turn of the century, and was adopted by the armed forces of Russia, Poland, Greece, Norway, and Sweden. The present consensus is that in return for all the complexity of advancing cylinder plus advancing breechblock to support the case head in the advanced cylinder, one gains at best 75 feet per second at the muzzle.

As far as the quest for firepower went, though, the Nagant was an anachronism despite its seven-shot cylinder, for there was no provision for simultaneous ejection. Equally retrograde was the Austro-Hungarian model of 1898, which had an eight-shot cylinder with no means for collective ejection. But an overall glance at the landscape as the new century replaced the old, found the revolver in pretty fair health.



The Bergmann „Simplex“ was one of the better first generation semiautos by one of the most prolific designers of the period, Theodore Bergmann, who sold his manufacturing license for this model to the Belgians in 1897. Some 4,000 legitimate Simplexes were built, as well as an undetermined number of very fastidious Spanish copies.



Bergmann's best design was this, patented in 1903 and adopted by the Danish Army in 1905. It chambered the very powerful 9mm Bergmann-Bayard, which is still the Spanish service pistol cartridge.



The 8mm Roth-Steyr, adopted by the Austro-Hungarian Cavalry in 1907, used a stripped internal magazine in the grip, and locked via a rotating barrel, a system later to be used by the Steyr-Hahn, the Czech Models 22, 24, and 26, the Mexican Obregon, and the French MAB P-15; whereas the Roth-Steyr used a bolt, the later guns employed a slide.

The early 1900s saw the introduction, to the delight of those who favor small calibers and tiny guns, of numerous .25-caliber automatics such as the Browning in 1906 and the Manufrance in 1910, ballistically feeble, but sufficiently worthwhile technically to remain in production, with but few modifications, a good half century later.

By the beginning of the 1914 war, such weapons as the Colt .45 Government Model (1911) and the Luger (1908), which many, even today, feel are the finest one-hand weapons in the world, were already in service. But France, gravely destitute of handguns, was forced from 1915 on to grub for 7.65mm Ruby pistols, Stars, and such-some of them good pistols, many of them mediocre, a few of them dangerous-as well as the notorious „92 Spanish,“ Iberian counterfeits of the S & W M & P model, but in French 8mm Mle 92 caliber. „At the end of the war, the production of a French pistol, an improvement over the Spanish types, was just on the brink of achievement“-just on the brink-so wrote Devouges.

The automatic pistols in service during the Great War generally compiled a good record for withstanding the hazards of wear and weather, and as is sometimes more pernicious, that of fickle fashion. Those that fell by the way were for the most part second-rate arms such as the Webley-Scott and Glisenti, not to overlook the horrid Vitali. The Steyr, accurate and reliable, fell victim to its outmoded stripper-clip loading system, as would, eventually, the Mauser Model 1896.



The 1911 Steyr-Hahn (Steyr with hammer) was the Austrian sidearm during the First World War, and was outclassed as a combat pistol only by the Colt of the same year. Though not as good a stopper as the Colt, and slower to reload, it was equally as reliable and had a longer reach, its 9mm slug departing at 1200 fps.



The Browning 1910 .32 ACP blowback pistol is still a popular police and personal protection weapon in Europe, and has had a profound influence on pocket-pistol design in all countries.



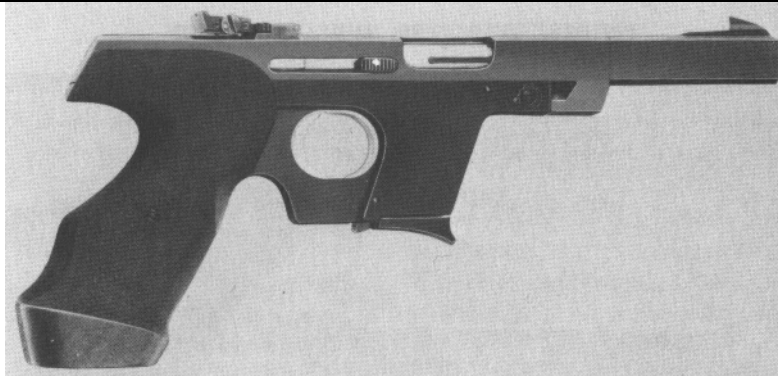
For want of enough Mle 1892 revolvers to fight a handgun war, French troops went to the trenches with a phenomenal hodgepodge of Spanish .32 automatics, of which these Stars, Rubys, and Zulaicas are representative.



On a lesser scale than for automatics, Spain furnished handgun-hungry French troops with copies of the Smith & Wesson M & P model chambered for the French 8mm Mle 1892 cartridge, thus the gun's name in French vernacular-92 espagnole.



The rare 1932 Walther was the first of a fabulous line of .22 target automatics. Designed for the 1932 Olympics, it was soon replaced by the famous Walther Olympic Model, which swept the field at the 1936 Berlin Olympics, and which evolved into the Hammerli models of today.



Walther's GSP, introduced in 1971, is the renowned German firm's effort to regain their former preeminence in target competition. Note anthropometric stocks and forward location of magazine.



The Walther PPK, introduced in 1929, is still the world's most highly regarded mediumframe automatic, and expressive of the vigorous state of German arms development between the wars.

After her defeat in 1918, Germany was rigorously restricted both in arms production and research. When the Allied Control Commission prohibited the manufacture of what they considered to be „military type handguns,“ German engineers turned their considerable talents to the design of smaller pistols. The Walther PP and PPK appeared in 1929 and 1930, to be followed by the Mauser HSc, the Sauer und Sohn M38(H), and the Bergmann-Menz Special, all of them highly advanced weapons. The remarkable Walther .22 rimfire target pistols were there as well, sweeping all before them in the Berlin Olympics. And after the new chancellor took office came the imposing Walther P-38.

The new Soviet Union, sorting out the wreckage of the October Revolution after the whirlwind of confusion that followed in its wake had subsided, found their arsenal an amazing mishmash of Czarist leftovers and antiquated flotsam of diverse origin, much of it ordered in small lots of whatever was available when anything at all had been vitally needed. To replace it all they introduced, in 1930, their Tokarev service pistol of classic Browning lines, but incorporating important internal improvements and innovations. It was a good weapon, firing a relatively light bullet at tremendous velocity. The new 7.62mm Tokarev was merely the 7.63mm Mauser long bottleneck round with a beefed-up powder charge, and was the standard cartridge for Soviet submachine guns in the World War II-Korea era as well.

If the revolver had been considered in Europe as virtually obsolete for military purposes shortly after the turn of the century, the interwar period saw its general demise as a police and personal defense weapon as well. Its place was taken by the semiauto, and the favored calibers were .32 and .380, particularly the former, and the small self-loaders which chambered them were legion. Among the more notable, besides the highly advanced Walther, Mauser, Sauer, and Bergmann-Menz models mentioned above, all of which were doubleaction, were the FN Model 1910 and later Model 1922, the Mauser Model 1910 and subsequent Model 1934, and some excellent guns from CZ in Czechoslovakia, and Beretta in Italy.

Exactly why the .32 became so much more popular than the .380 in Europe is moot. But it did, and it was a reflection of this taste that saw the .32 defined as a personal defense gun in French legislation while the .380 was branded „war materiel“ and forbidden to civilians. This sad history of repressive legislation, with which France has persisted in burdening herself, has not, however, prevented the creation by MAB (Société d'Exploitation de la Manufacture d'Armes Automatiques, Bayonne) and Unique of several models good enough for equipping the police. Manufrance, since the early years of the century, has produced an interesting line of double-action semiautos in .25, .32, and a few in 9mm Browning Long. These, however, were dropped from their catalog in 1968, though a few are reportedly still being fitted up from parts in stock.

When, in 1935, Belgium and Poland adopted service pistols in 9mm Parabellum, they were, in standardizing on the German cartridge, both following in the footsteps and setting the pace for the rest of Europe, for this excellent cartridge, already in wide distribution, was destined to become the standard pistol and submachine-gun round for practically the entire Western world. France, however, was not looking this far ahead, for in the same year the French adopted their first semiauto service pistol, the Mle 1935 A and S, and proceeded at the same stroke to create a cartridge for themselves alone, the 7.65mm (.30) Long. .



The Models 1935A and S were the standard French service pistols during the Second World War and much of the Indo-Chinese conflict. Though underpowered, they were well-designed and well-constructed weapons, although they gained a reputation for jams because of the mediocre quality of the cartridges issued.



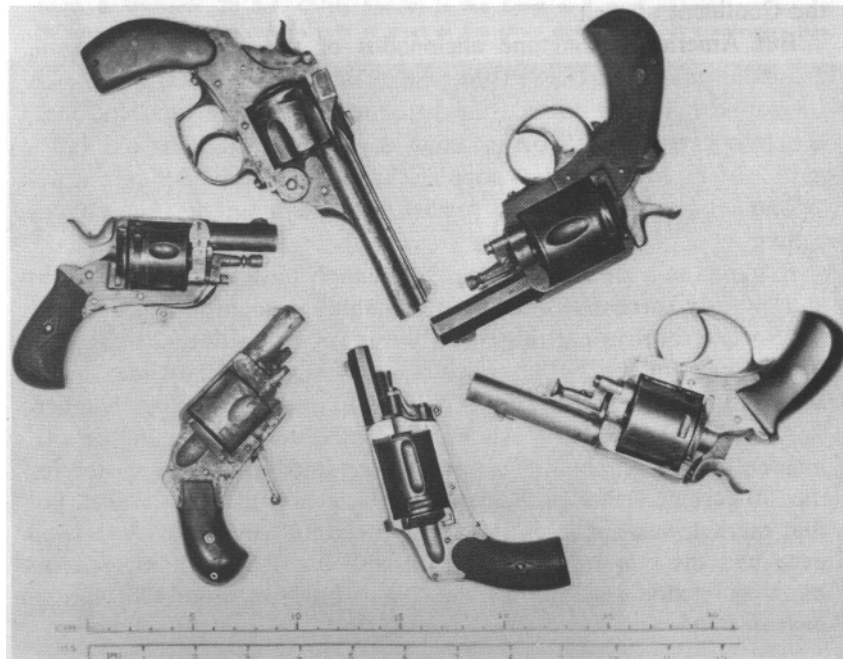
The Russian Tokarev, adopted in 1930 and modified in 1933, was an extraordinarily fine design-one of the best of modern military handguns.



The Luger, introduced in 1900 and still in service here and there, is perhaps the best known of battle pistols. This is a recent specimen, manufactured by Mauser.



Colt's .45 Government has been the United States service pistol for sixty years, and is now more popular than ever. It is, given a decent trigger, accurate, easily controlled, and instantly effective. This one is the 1911 A1 modification introduced between the wars and still standard.



„Ironmongery“ like this, mostly of Belgian manufacture, flooded Europe before and after the First World War. The VeloDog revolver at bottom was rather an interesting gun, and the British Bulldog copies at right had something to recommend them, but the S & W copy and the two nondescripts were quite worthless, even if of far higher quality than modern „junk“ guns.

The Mle 1935, its cartridge aside, was a nice enough gun, indeed an excellent one in many respects, but was, like all its predecessors in the French service, produced in grossly insufficient numbers, and the mobilization of 1939 recommenced the old pathetic game as France turned again, desperate as always, to the Spanish to arm her officers. The Mle '92 was kept on duty, and here and there the hoary Mle '73 was even pressed back into service.

The term „ironmongery“ was about to escape our lips in reference to some of the Spanish pistols that France buys by the trainload during the course of every war. But that would have been perhaps unfair, for these guns were inevitably demanded at a rate that often precluded care in manufacture. Let us then reassign „ironmongery“ to designate the wave of rubbish—mostly Belgian for revolvers—that inundated Europe before and after World War I. We still see these items occasionally in gunshop windows, and it is always with relief if not pleasure that we leave them there, gathering dust.

Aside from this refuse then, did the revolver die out after 1914? Certainly not. In England, after the dismal performance of the Webley and Scott .455 of 1912, large-bore semiautos fell into disrepute on the Foggy Isles, and the British put their trust in Webley or Enfield revolvers chambered for .455 or .380, and produced, for the civilian market, a scaled-down cylinder gun in .32 S & W Long. Gabilondo in Spain and later Bernadelli in Italy were busily churning out copies of the Smith & Wesson in .22, .32, and .38. Finally, United States manufacturers designed, built, and marketed a sensational panoply of revolvers: longs, shorts, airweights, heavyweights, streamlines, squatties, gigantic pieces on the one hand and minuscule ones on the other. There was a wheel gun for every taste, every purpose, and every pocketbook, from featherweight five-shot .32s and .38s that coyly concealed themselves in the palm of the hand, up to the next-to-latest-born S & W .44 Magnum of 1955, of which even a jaded and blasé expert noted that firing it reminded him of touching off a howitzer. Then there were the Western-style revolvers in every imaginable caliber from .22 rimfire to .476 (the forever-young Peacemaker could be bought in any one of thirty different calibersthirty-six, according to one source). It would be unpardonable not to note that American police are equipped almost exclusively with revolvers, .38 Specials for the most part, with the .32 New Police still hanging on in some old-line outfits, and the .357 Magnum coming on strong.

During the post World War II years Ruger made a substantial fortune selling excellent copies of the Peacemaker, finally forcing Colt, in 1956, to reintroduce the original. Colt, however, priced theirs quite out of sight, and suddenly everyone seemed to get into the act. Since 1958 manufacturers in Germany, Belgium, and Italy have built, with some degree of success and at relatively low prices, copies of the colorful old hoglegs of Western history, both cartridge and percussion models, for export to the United States and for sale on the Continent as well.

But Americans, longtime aficionados of the revolving handgun, are today taking a renewed interest in the self-loader, and the past several years have witnessed the introduction of some excellent ones, generally carrying the Colt or Smith & Wesson label. The old 1911, in .45 ACP, is today more popular than ever before. But recent development has focused to a remarkable extent on the 9mm Parabellum.

Ranking as a small technological triumph have been the vigorous and recently successful attempts to chamber semiauto pistols for the .38 Special revolver cartridge, and the introduction of a .22 LR conversion unit for the 1911 service .45 utilizing a special slide, magazine, and a barrel with Carbine Williams's amazing floating chamber.

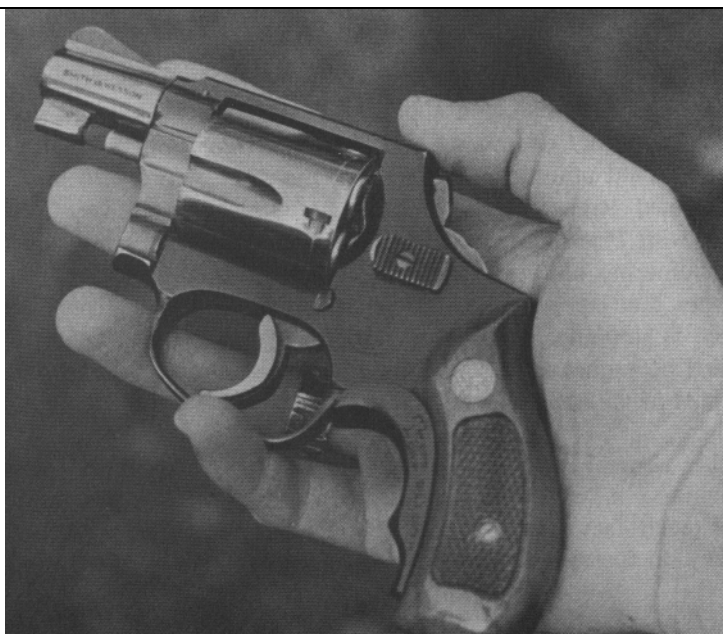
A notion that didn't wash was the endeavor of a young experimenter named Kimball to develop a retarded blowback pistol for the .30 carbine cartridge. Kimball was seeking a military market, but that market was not interested, and probably would not have been even had the gun worked, which it did not. Ruger chambered his big single-action revolver for the .30 carbine cartridge with sportsmen in mind, and has enjoyed fair success.

Three new cartridges of lasting importance have made the scene: the .357 and .44 Magnums, already mentioned, which are basically nothing more than .38 and .44 Specials with slightly lengthened cases and powder charges beefed up far enough to forbid their use in older weapons; and now the all-new .41 Magnum.

Finally we have a curious family of handguns with two barrels, one atop the other. Of small size, but usually of heavy caliber, they fire twice and are known as „derringers“; they are an old American specialty.

As we have seen, the United States, although endeavoring to hold fast to the Western tradition of the heavy slug at moderate to fast velocities-guaranteed to set an opponent on his rustic derrière - has nevertheless been tending toward the 9mm Parabellum, though favoring expanding bullets for it for fear of otherwise having too feeble a sidearm.

And in France? Not a whole lot has happened, but she has finally moved up to the Parabellum, being virtually the last country in Europe to fall in line, after Finland (P40 Lahti), and Switzerland (Neuhausen SP47/8). French legislation prohibits the sale of this caliber to civilians, and it was not until 1950 that the Army adopted it. The new MAC (Manufacture d'Armes de Chatellerault) 50 Service pistol is a serious weapon, despite the fact that opinions diverge, as ever they must in France, on the subject. And the newest MABs, the R and the P15, the latter using a Steyr-type rotating barrel, seem to be good weapons, worthy of international attention, as is certainly the most recent Beretta, the M1951.



Smith & Wesson's .38 Spl. Chiefs Special is the finest and most popular revolver of its type, and the same can be said of most of the other guns in S & W's extensive line.

There are, from this historical essay, albeit brief and necessarily incomplete, several conclusions to be drawn. Most will be treated in greater detail further on in the book, but one, concerning commerce, legislation, and industry, bears discussing now.

France, once a nation of gunsmiths who contributed through their inventions and perfections so much to the advancement of weapons technology in the field of handguns as well as shoulder arms, has for the past several decades been forced to base the major portion of its meager production on ideas and inspiration borrowed from abroad. The French handgun industry has virtually been in hibernation for years now, and deserves to be resuscitated. The situation is not of the industry's making. It is not the industry's fault that it has been repeatedly the target of cumbersome legislation resulting from police fears for the internal security. If the sale of handguns is to be further and further restricted, it would be well to pay heed to the long-term consequences.

An interest in firearms has become a sin in France, a scarlet letter to be worn to one's shame. The hobbyist who would collect revolvers rather than vulgar postage stamps, delicate butterflies, or innocent Camembert boxes, is viewed with disapprobation by his family, alarm by his neighbors, and distrust by the nearest commissariat of police, distrust which soon results in the seizure of this „arsenal“ and judicial rebuke-if nothing worse. For French law does not recognize collectors in this domain-only maniacs. And it seems impossible to say „maniac“ without preceding it with „dangerous“ as facile a phrase as an attitude.

But we were speaking of consequences, and they are as dramatic as a headline. First, handgun shooting, like riflery, its kindred discipline, a sport that demands the highest refinements of skill from those who would practice it successfully, and that contributed much to the national defense, has virtually withered away in France. Contrast this with France before the Great War, where shooting clubs were so numerous and widespread that even the smallest community had ranges that were frequented by the young and old alike. The difference is stunning. The shooting sports then were as popular as *belote* and *pétanque* are today. Shooting was a habit, a national pastime, a part of the social mores, and this, once lost, is a difficult status to regain.

Another consequence, perhaps equally as grave: unable to count on a civilian market for an extended run of a new handgun, hamstrung French factories and their atrophied research departments, when they do summon the courage to risk a new model, often wind

up expending considerable sums for prototypes which they then have to swallow, discovering either that they are still far behind foreign competition, or that they cannot match prices on a limited-production schedule.

The shotgun industry, however, is still in fair health, thanks to two million hunting licenses sold each year and a happy absence of legislation against their sale and ownership. But this situation may not last forever. Sporting rifles still maintain a tenuous toehold, but the recent misdirected legislation against the .22 rimfire may take a heavy toll of rifle sales, thereby reducing the profit of the companies to below the point of viability. The handgun industry, meanwhile, has dwindled to near zero.

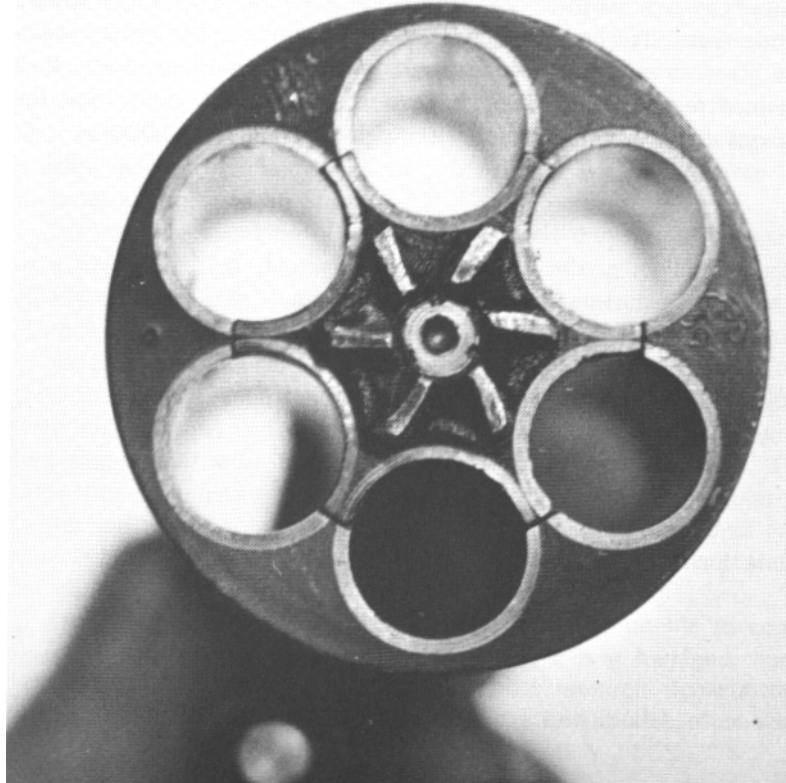
Reassessment of the situation is long overdue, and if returning to a completely free arms market would seem a bit inopportune to many, at least the sale of ammunition should be liberalized by renouncing the unfortunate, inefficient, and inane legislative classification of cartridges into the categories of personal defense and war materiel, a folly that has paralyzed France for years. This would be a first step, but one which has long been needed and which might serve to revive the industry at least to the point that it could make some measurable contribution in the event of a national emergency.

Were there a market in France, there would be room in it for a panoply of new models. And they would be good ones. For France's armorers are like her researchers, her philosophers, her artists; when one gives them the chance to work, when one lets them work, they produce masterpieces. They have not done so for years, and the reasons are something Americans might do well to ponder.

[3]

REVOLVERS

REVOLVERS ARE distinguished by their revolving magazines, or „cylinders,“ which carry the cartridges in individual chambers, each of which must be brought in line with the barrel by a partial revolution of the cylinder for firing. And this, it would often seem, is about the only point in common which revolvers of widely differing types always share. What then are the design variations from type to type, gun to gun? On what points can a revolver, chosen at random, be classified?



„Revolvers are distinguished by their revolving magazines or 'cylinders,' which carry the cartridges in individual chambers.. .

A wheelgun's most salient characteristics are its ignition system (percussion, pinfire, rimfire, center-fire, etc.); its action type (single, double, or otherwise); its extraction and ejection system (most commonly rod, automatic, or hand); and its cartridge capacity. In order to get any overall notion of the gun, the facts of its design and each of these points must be known. Each of these categories of course has its freak types, weird variations, and transition models. The expert will be conversant with other design areas and subareas that would lend themselves to further classification. The various mechanical arrangements by which double-action fire is effected, for instance, are a particularly rich area of study. The purposes of an introductory text, however, are best served by restricting discussion to the four primary areas mentioned: ignition system, action type, ejection system, and cartridge capacity.

Of these, the first covers by far the greatest span of time, hence is the broadest classification. Although the various ignition systems generally succeeded one another in popular usage, it should never be forgotten that there was considerable overlap either way. Or, as one astute commentator noted, „The musket did not unseat the crossbow overnight.“

IGNITION SYSTEMS

The percussion cap, which, by replacing the cumbersome, complicated, and expensive flintlock mechanism, made the revolver a truly practical arm, appeared prior to 1820, and revolvers using this compact and reliable ignition device were fairly common in civilian use by the end of the 1830s, although it would take the military another couple of decades to catch on.

Weapons that use percussion-cap ignition are popularly known as „cap-and-ball“ guns. The powder was poured loose into the chamber from a flask which had a meter built into the spout, then the ball was rammed home atop the charge. Loading was completed by slipping a percussion cap onto the nipples which projected, one from each chamber, at the rear of the cylinder. The nipple was a hollow iron or steel stud which served as an anvil against which the hammer crushed the fulminate pellet contained in the cap, and routed the flames from the resulting detonation into the chamber where they ignited the powder.

Sometimes, to speed loading, a premeasured charge of powder was wrapped up with a bullet to form a paper cartridge. The bullet was bitten off, the powder poured from the paper tube into the chamber, and the bullet rammed home. A later refinement was the use of highly nitrated papers to make combustible cartridges. With these, since the paper was consumed by the burning powder, the whole package could be rammed into the chamber, leaving the seating of the caps on the nipples the only really fumblesome part of loading.

Although cap-and-ball guns reached the peak of their success during the American War Between the States of 1860-65, where both rifles and revolvers using this system were standard on both sides, they were already obsolete. Self-contained metallic cartridges of the pinfire system had gained considerable popularity in Europe during the 1850s.



The first step in loading a percussion revolver was to meter a charge of powder from the flask into the drop tube, then dump it into the chamber.



The bullet was then placed in the mouth of the chamber and rammed home atop the charge. If time permitted, a dollop of grease, or wax, was applied over the bullet to keep the bore fouling soft during shooting, and to additionally fireproof the chambers.



The final operation was to place a percussion cap on each of the six nipples. Note the hammer at half-cock throughout, which frees the cylinder to be rotated.

The pinfire was so named because of the distinctive pin that projected radially from the base of the cartridge. The blow of the Hammer served to drive the pin inward, causing it to detonate an internal primer and ignite the powder. The pinfire cartridge should not be confused with that intended for the Dreyse needle-fire revolver which, patterned after the rifle of the same name, used a combustible paper cartridge, the entire length of which the needlelike firing pin had to penetrate in order to reach the primer compound embedded in the base of the bullet. The pinfire was an infinitely more practical device than the aberrant needle fire, and is the source from which all later self-contained metallic cartridges originated.

During the 1860s the pinfire was generally supplanted by the rimfire, which carried the priming compound around the full circumference of its hollow rim. The first one was invented by

Louis Flobert, a Parisian gunsmith, in 1845. Called a „bulleted breech cap“ it contained no powder charge whatever, hence was too feeble to be useful for anything but parlor shooting, a popular pastime of the era. Houiller's patent of the following year brought the rimfire to its present form, and Smith & Wesson's revolver, introduced in .22 caliber late in 1857, and in .32 shortly thereafter, is the first cylinder gun known to have chambered it.

Finally, toward 1870, the center-fire cartridge came into use. With the exception of the popular .22 rimfire, practically all current cartridges are of the center-fire type, since its solid, massive case head and externally fitted primer (as now manufactured) permit chamber pressures that would rupture the relatively weak pinfire and rimfire cases.

This then is the general evolutionary flow of revolvers by ignition type. A retrogression in development occurred during the late 1860s when manufacturers introduced scores of weird revolvers that loaded from the front of the cylinder, the side of the chamber, or some equally inappropriate location. And along with these came freakish cartridges to fit them: teat fire, lip fire, annular rimfire, cup fire, and the like. These rank aberrations were all designed to circumvent Smith & Wesson's patents, which covered loading from the rear of the cylinder. They never achieved significant distribution, and have no importance save as droll curiosities.



These 9mms illustrate the three ages of the metallic cartridge. The pinfire on the left discharged when the hammer, falling from above, drove the pin deeper into the case to crush the primer pellet. The rimfire in the center carried its primer compound around the full periphery of its hollow rim, to be crushed by the hammer against the breech end of the barrel or cylinder. The cartridge at right is center fire, and intended for autopistols; a revolver cartridge would have a bit more rim.

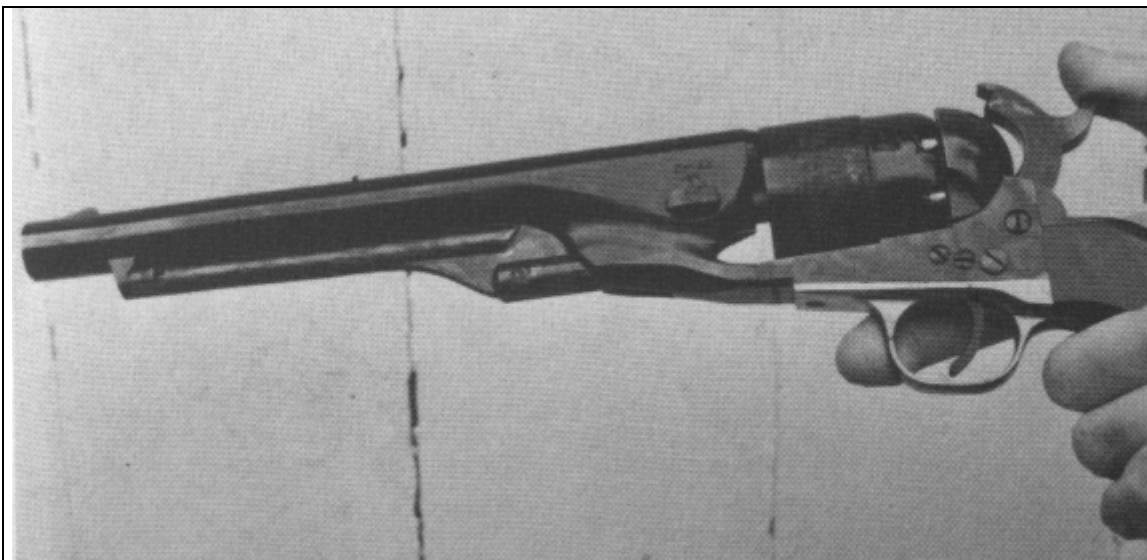
ACTION TYPES

A common method of classifying revolvers of whatever ignition type is according to the sort of trigger mechanism they use: most are either single or double action.

To explain what these terms mean, let us start with an example. A single-shot pistol generally, no matter what its ignition system, has a single-action trigger. Merely pulling on the trigger has no effect whatever if the hammer is not cocked first. The trigger performs the single action or function of releasing the cocked hammer to be driven forward by the mainspring (and parenthetically of holding the hammer at full cock position against the tension of the mainspring until it is released). Single-action revolvers work just this way; the hammer must be manually cocked to ready the gun for each shot, and the hammer, while it is being hauled back to full cock position, rotates the cylinder one-sixth revolution and locks a fresh cartridge in line with the firing pin and barrel.

All the „work“ of readying the gun for the shot has been done by the thumb. The trigger finger need only apply a light pressure usually about three pounds-to cause the hammer to fall and fire the cartridge. Accuracy then comes easy with a single-action, and most target shooters use this mode of discharge exclusively.

Most of the revolvers that wrote American history in bold print were single-action, from the cap-and-ball sixguns of the Mexican War and the War Between the States to the Colt Frontier Model, Single Action Army, Peacemaker-call it what you like-of the early West. The Smith & Wesson American, Russian, and Schofield models, the 1875 Remington, the Merwin and Hulberts, which vied with meager success to encroach on the Colt's overwhelming popularity on the Western frontier, were all thumb-cockers. So too the Rugers and Dakotas of today.



Most of the guns that wrote American history were single-action. The 1860 Army of Civil War fame had to have its imposing hammer eared back by thumb before it would make fire. During the cocking stroke, the hammer activated the hand, which turned the cylinder 1/6 revolution and brought a fresh chamber topside.

Going against the single-action is its slowness. Thumb-cocking takes time. The first shot was fast enough since the hammer was rocked back as the gun came out of the holster, but succeeding shots were tardy.

There is a way, though, to make the single-action keep pace with a machine gun. The technique is called „fanning,“ and it involves holding the gun in a rock-hard grip, with the trigger depressed at all times and the elbow of the gun arm locked firmly into the side at the base of the rib cage. The gun is fired by slapping or „fanning“ the hammer back with the palm of the left hand. After a cartload of practice ammo a marksman could get fairly handy at this up to a maximum of 10 yards' range, but practically speaking it was purely an across-the-card-table proposition. As far as I know, fanning has never been used in a gunfight, but Hollywood directors found this flashy technique much to their liking.

Today single-action target revolvers are manufactured by the Czechs (ZKR 551), the Russians (TOZ 36 and MU4-1), and by Smith & Wesson in the United States (Model 14 Masterpiece Single Action). These highly specialized instruments are intended primarily for use in the International Shooting Union (ISU)-Olympic centerfire match.

Heavy-caliber Ruger Western-style single-actions are popular with big-game hunters who, like Olympic target shooters, are much more interested in accuracy than speed.

Finally, the profusion of small-bore single-actions produced by Colt, Ruger, and a gaggle of others in Europe and the United States, brings innocent pleasure to plinkers and casual shooters who can pot a tin can with the kind of sixgun that once swung at the hip of such as Wyatt Earp, Bat Masterson, and John Wesley Hardin.

By the time of the Spanish-American War the single-action had, even in the United States, been replaced by the double-action revolver, which does not require thumb-cocking. A long pull-through on the trigger performs the two functions of rocking the hammer back to near-full cock position, then automatically releasing it to fire the shot. In a double-action revolver the parts that unlock, rotate, and relock the cylinder are coupled to the trigger rather than to the hammer, so fanning is impossible. So long as the trigger is held back, the cylinder will not rotate, and the hammer, if fanned, will continue to strike the same spent cartridge in the topmost chamber.

Unnecessary, this, for a double-action revolver can be fired quite fast indeed as is. However, fast, accurate double-action work is something of a contradiction of terms, since it takes about twelve pounds of pressure on the trigger to fire the weapon, and the two-pound gun is apt to get jostled off target in the process. It takes quite a bit of practice to crank off six shots in three seconds at 10 yards, or six in six at 25 yards, and maintain acceptable accuracy, but it is hardly an impossibility.

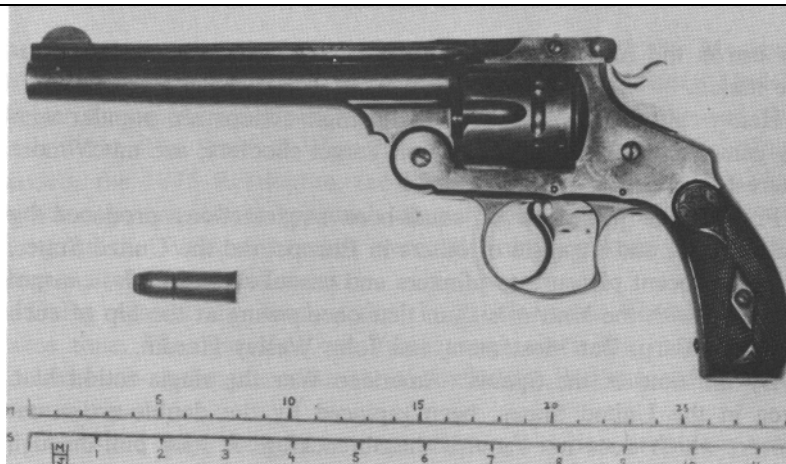
Most double-action revolvers may also be thumb-cocked and fired single-action fashion, and this is usually preferable when time permits. American police are generally trained to fire double-action out to 25 yards, and to thumb-cock at longer ranges.

Some double-action revolvers, of course, do not permit thumbcocking, indeed, have no hammer of any sort. The best known of these are the old Smith & Wesson Safety Hammerless

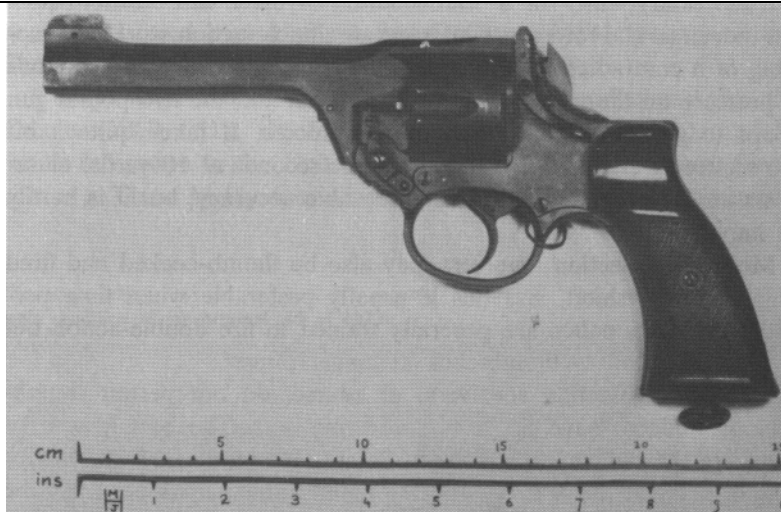
of 1880s vintage in .32 and .38 S & W, and the new Centennial Model from the same firm in .38 Special. Actually both guns do have hammers, but they are hidden inside, and the gun has to be taken apart to prove it. They also have grip safeties-lemon squeezer safeties in the vernacular -and the idea was that the combination of a stiff doubleaction-trigger pull and a grip safety on the backstrap would cut down on the number of accidents, particularly in cases where a child finds his father's revolver. As an ancillary advantage, these guns come out of a pocket slick and easy, and may even be fired from within the pocket without fear of snarling the hammer.



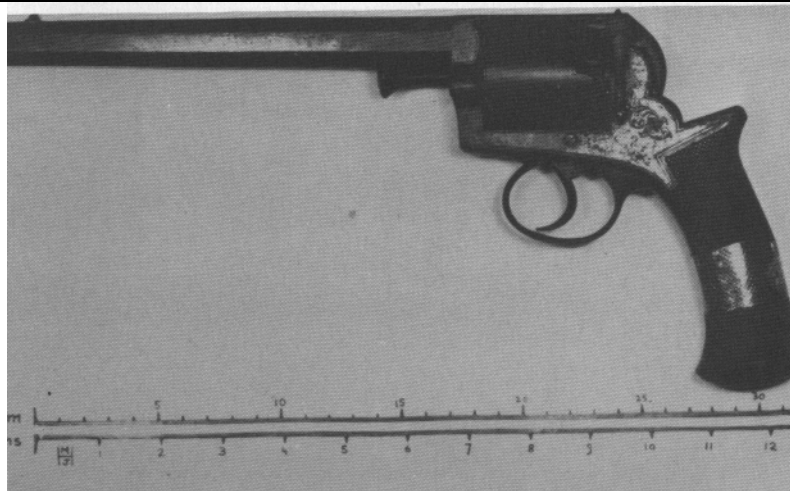
The single-action lives on, as in Colt's recently introduced „Peacemaker .22,“ a 7/8 scale rendition of the original .45 of 1873.



Smith & Wesson's .44-40 „Frontier“ of 1886, preceded by an identical gun in .44 Russian in 1881, was one of the first American double-action revolvers. Colt had introduced its first self-cockers in 1877 and 1878.



The British Enfield No. 2 Mark 1*, of Second World War commando fame, is the best known of the double-action-only revolvers. It has neither hammer spur nor single-action sear notch.



The first Model Adams of 1851 was double-action only, and was preferred by battlehard British troops in the Crimea and India to the single-action 1851 Colt Navy, also in wide circulation.

Smith & Wesson's Bodyguard is a half-breed, with built-up sidewalls to shield the hammer, leaving just the tip of the spur protruding so that it may still be thumb-cocked if desired. Colt accomplishes the same thing with a device they call the hammer shroud which may be attached to their small-frame defense guns.

The Belgians, in the early part of the century, produced a rash of mediocre quality internal-hammer double-action-only revolvers in .25, .32, and .38 calibers. Some had the exterior lines of a semiauto pistol, which made them hopelessly homely looking, and hardly helped their hang in the hand.

Probably the best known double-action-only revolver is the Enfield No. 2 Mark I* of World War II fame. Approved for manufacture on June 22, 1938, the Enfield reflected a feeling on the part of many battle-savvy British officers that the exigencies of close combat demanded double-action shooting, and that the single-action option was merely a temptation to dawdle. No one broadcast this viewpoint louder than W. E. Fairbairn, in charge of firearms training for the Singapore Police, whose theories on what was proper in police weapons training remain little short of revolutionary, even today. With the outbreak of war he was pulled back to Britain to whip the Commandos into trim, and must have found the No. 2 Mark I* much to his liking. It had no hammer spur and no full-cock notch, and in the hands of Fairbairn's protégés gave a fine account both of itself and of his philosophy of combat shooting.

Double-action-only revolvers should not have been a novelty, however, and certainly not to British military men. For their first service revolver, even if unofficially so, was the double-action-only Adams of 1851, which saw immediate service in the Crimea and, three years later, during the Sepoy Rebellion in India. The single-action Colt of 1851 enjoyed a certain vogue early in the

Crimean campaign, but when the situation bogged down, as it soon did, to a seemingly endless succession of bitter hand-to-hand clashes in the muddy trenches around Sevastopol, the Adams proved itself the better gun for the game.

Though never losing sight of where the action really was, the British Army of the day saw no reason to limit its options, and the gun they adopted in 1856 was the double-action Adams with Frederick Beaumont's 1855 patent sear in the mechanism, which allowed thumbcocking and single-action fire if the shooter thought it appropriate.

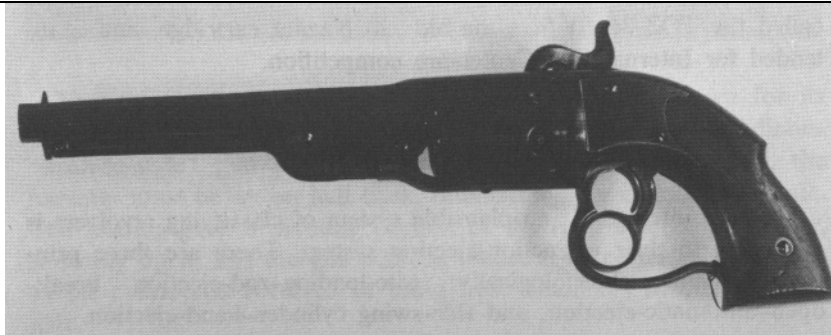
Since the two systems, single- and double-action, were thereby blended into the same mechanism, it is not illogical for the British to refer to such guns, as they sometimes do, as triple-action revolvers. Americans, when they endeavor to be precise, usually call them selective double-actions.

The term „triple-action“ has recently been applied in the United States to an experimental revolver invented by Roy Tappehorn of Louisville, Kentucky, which can be fired single-action, double-action, or yet another way. The trigger may be pulled through, bringing the hammer to full cock, then released slightly and pressed again à la single-action to trip the hammer. The mode of fire is governed by a clutch in the form of a thumb lever on the left of the frame. When the thumb is locked down, as it normally is when a revolver is fired double-action, the lever is depressed and the Tappehorn gun functions, double-action. When the thumb is lifted to a higher position, as it normally is for deliberate fire, the lever is not depressed and the sear will hold the hammer at full cock whether the hammer is got there by thumb-cocking or by pulling through on the trigger-the tripleaction option.

An action type which, as it turned out, was transitional in nature, though quite simple and practical, was that used on the English Tranter revolvers of the 1850s and early 1860s. The Tranter employed, or so it seemed at first glance, two triggers: one within the trigger guard and another below it. Closer examination showed that both were one piece, and that the guard was slotted to allow this extraordinarily long trigger to pass through it. Inset into the upper portion of the trigger-the half of it that was inside the trigger guard -was a pivoted piece that was an extension of the sear. To fire, the lower trigger (the real trigger) was pulled, bringing the hammer to full cock. Then the upper trigger (the sear extension) was pressed, tripping the hammer. It took two fingers to work this rig, and it worked very well. The Tranter could be fired almost as fast as a double-action revolver, and, at a somewhat slower cadence, as accurately as a single-action without the necessity of disturbing the grip to thumb-cock the hammer. An analogous system was used on the Savage-North Navy revolver during the War Between the States.



The world's first center-fire revolver, this Perrin & Delmas of about 1865 was another d.a. only. With its side-gate loading and solid frame, it was more than a decade ahead of United States developments.

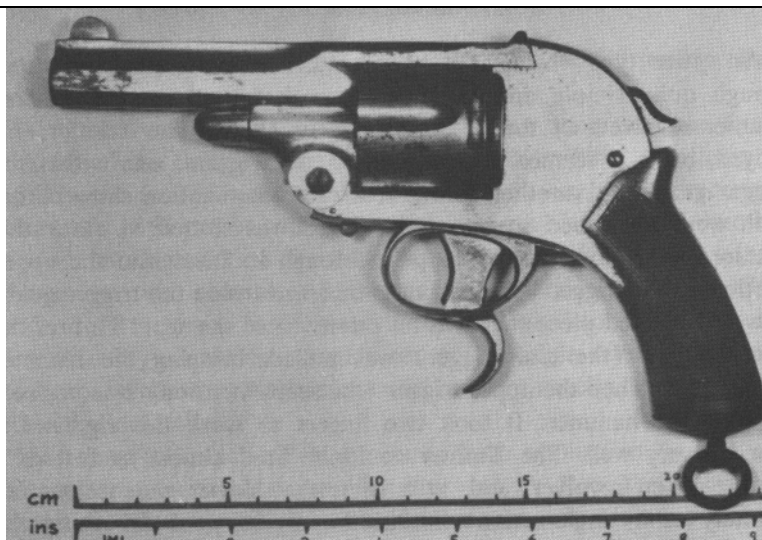


The E. Savage-H. S. North .36 Navy was better known as the „Savage Figure Eight“ after its unique trigger. The lower or „ring“ trigger was pulled fully rearward, then released to return forward, leaving the hammer at full cock. A light pressure on the upper trigger would then fire the gun. Thumb cocking was possible but entirely unnecessary. Eleven thousand two hundred and eighty-four of these curious but quite practical guns were delivered to Union forces from 1861 to 1865.

A variant action type which lends itself poorly to categorization is the Nagant, which was discussed at some length in Chapter 2. The Nagant is characterized by its cylinder, which is trucked forward after rotation so that the chamber envelops the breech end of the barrel. It uses an extremely long cartridge case in which the bullet is seated below the mouth of the case, the object being to prevent the gas leakage at the cylinder-barrel joint which occurs in conventional revolvers, and to ensure perfect chamber-barrel alignment and thereby enhance the accuracy of the gun to some meager extent. The object is achieved by actually having the mouth of the cartridge case protrude into the barrel when the gun fires. Since the cylinder is run substantially forward to accomplish all this, a movable breechblock element has to go forward as well to support the base of the cartridge and keep it from rupturing backward on firing. Mechanically, the whole show gets pretty complicated.

Revolvers of this type were introduced by Nagant and Pieper in Liège, Belgium, in 1894 and 1897. The Nagant was adopted by the Russian Army in 1895 and was the Czarist, then Soviet, service sidearm until replaced by the Tokarev automatic pistol in 1930. Vast quantities of the Nagant were used by the Russians during World War II, and some observers believe that production was not finally terminated until about 1950.

The forward-moving cylinder principle of the Nagant was resurrected by the Russians during the 1960s for use in a target revolver called the TOZ-36. It fires the old .30 Nagant cartridge, and is intended for International Center-fire competition.

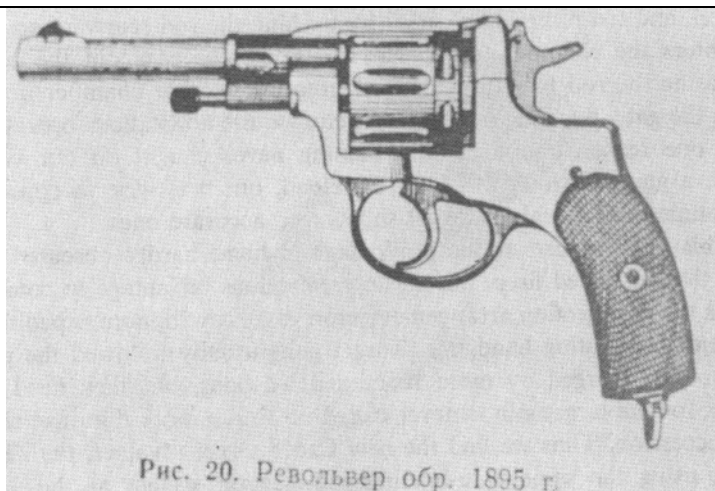


What appears to be a hammer spur on this 1885 Kynoch is actually the barrel latch. Pulling the „lower trigger“ fully back rotated the cylinder and cocked the arm, while a light squeeze on the upper trigger discharged it. Revolvers by Tranter in Britain and Savage in the United States used analogous systems. The Kynoch, designed by H. Schlund, was manufactured until 1891 in a wide assortment of calibers ranging from .297/.230 to .476.

EJECTION SYSTEMS

Another interesting and plausible system of classifying revolvers is according to their extraction-ejection system. There are three principal systems, chronologically: gate-loading-rod-ejection; breakopen-automatic-ejection; and side-swing cylinder-hand-ejection.

The gate-loading-rod-ejection arrangement is best known for its use on the Colt Single-action Army of 1873, and the multitudinous „western-style“ gun patterned after it. To load or unload it, the hammer must be set on half cock, thus freeing the cylinder to rotate. The loading gate, a pivoting portion of the right side of the frame, is swung open, and the gun may be loaded, one cartridge at a time, as the cylinder is revolved to bring fresh chambers in line with the gate.



The Model 1895 Nagant Russian service revolver used a forward-tracking cylinder, which actually inserted the mouth of the cartridge case into the breech of the barrel for each shot, thereby increasing accuracy, velocity, cost, and complication.



The Nagant cylinder arrangement has recently been resurrected by both the Russians and the Czechs for their center-fire target revolvers. This is the Czech ZKR 551, a singleaction, gate-loading arm of very high quality. Note the chambers recessed from the front to mate the barrel.

A spring-loaded ejector rod is mounted in a housing alongside the barrel, and the piece is unloaded by pushing the rod rearward so that it enters the chamber full length and Boots the case out the back, releasing the rod to return forward, rotating another chamber in line with the gate, pushing the rod back, etc. - quite a fastidious operation, and one reason doubtless why fanning never caught an out West. With a gun that took this long to reload, one was wise to conserve ammunition and make sure all shots were accurate ones.

This prudent use of the equipment in hand hardly obscured the fact that sustained firepower was a tremendous advantage in combat. Thus the rod-ejection arrangement soon gave way to more expeditious systems on fighting handguns. Target guns usually followed the path of progress forged by more functional weapons, but they need not have, for the target gun is never called on to fire more than five shots in succession. Thus we find the new Czech target revolver, the ZKR551, using the same gate-loading-rod-ejection system as the 1873 Colt.

The gate-loading-rod-ejection system is likewise found on the Lefauchaux, the Schmidt-Rubin 1882, the Glisenti 1872, the 1880 German service, or Reichsrevolver, the Webley RIC, as well as on various cheap revolvers of practically every nationality, with the Belgians as usual predominating. The French service revolvers of 1873 and 1874 also used this tedious system, although the Manufacture d'Armes de Saint-Étienne had, in 1865, taken out the Drivon et Biron patents for a collective ejector; this evidently was far too efficient to find favor with the French General Staff.

Most American revolvers of the era - Colt, Remington, etc. housed the ejector rod alongside the Barrel and backed it up with a return spring, while the Europeans, the Belgians in particular, tended to hide the rod inside the cylinder axis pin, which was hollowed out to accept it. To unload, the rod had to be pulled forward, then pivoted over in line with the chamber, pushed in to eject the case, pulled manually back out so the cylinder could be rotated, pushed back in, and so forth. When the gun was finally unloaded, the apparatus had to be swung back over in line with the cylinder axis pin and shoved home. A gunmaker named Abadie supposedly held patents on this dismal rig-up, but it was used all over.

The other two systems appeared within fifteen years of each other, and remained in stiff competition over the next century.



As the Barrel is tipped downward, the cartridge cases are automatically pushed up out of the cylinder and, if all goes well, pitched free. Smith & Wesson introduced this system in 1869, and it is here shown on their „Safety Hammerless,“ a double-action-only pocket revolver; the British Webleys use the same arrangement. If you are used to it, there is none faster.

The Break-open-automatic-ejection system was covered by the W. C. Dodge and C. A. King patents which Daniel B. Wesson purchased in 1869, and promptly appeared in the fine, massive, accurate .44 S & W American model.

Briefly, the Barrel-cylinder unit is hinged to the frontmost portion of the frame, ahead of the trigger guard, while the end of the topstrap is fastened to the standing breech just about where the rear sight is situated. Unlatching the topstrap permits the Barrel to pivot downward in a vertical plane, thus lifting the cylinder away from the breechface. The ejector is a star-shaped disk which engages under the rim of each cartridge, and is mounted on the end of a shaft housed inside the cylinder axis. While the Barrel is on the way down, a catch in the hinge joint forces the ejector upward, carrying the cartridges or cartridge cases with it. When the gun is fully open the ejector has reached the end of its travel (which exceeds the length of the cartridge cases) and snaps back flush with the rear face of the cylinder under spring pressure.

The whole deal takes getting used to. The gun has to be broken very briskly, and turned as near to upside down as possible in the process, so that the empties can fall free. Someone unused to break-open revolvers is dead certain to get a couple of empties hung under the ejector star. To clear them you have to pry the ejector up against its spring with one hand and fish the empties out with the other - a first-class annoyance. To those who are used to it, though, this is the fastest revolver to unload and reload, bar none. The Smith & Wesson was the

minority preference on the Western frontier, but those who chose it were a discerning minority, though some, like General Custer and Jesse James, both Smith & Wesson fans, were rather short on luck.

The British were staunch advocates of the break-open system, and their military service revolvers - Webleys and Enfields - of this type were not superseded until the late 1950s, when the Browning High Power automatic pistol was adopted.

Probably the biggest drawback to the break-open system is the difficulty of partial reloading. The whole lot wants dumping at once. If you open the revolver just far enough to pluck a couple of empties out, the loaded rounds are wont to slip off the extractor and fall back into the chambers. Then the extractor returns atop them and everything stalls.

Break-open revolvers are still manufactured by Webley in Britain, but in the United States only second-string sidearms such as the Harrington & Richardson use this system. Smith & Wesson switched over to the Colt way of doing things about the turn of the century, under curious circumstances, but we shall get to that directly.



First of the breaktops, and Smith & Wesson's first really serious revolver, was the magnificent .44 American Model of 1870. The gun pictured is known to collectors as the „Old, Old Model Russian“; introduced in 1871, it was virtually identical to the American. Though the breaktop system failed to catch on, except for pocket pistols, in the U.S., the British immediately appreciated its virtues and employed it in a renowned series of combat revolvers.



The 1882 Enfield used a bastard system that pleased no one except the British Test Commission. It was abandoned within seven years, but remained in service with the Canadian Northwest Mounted Police until 1905.

A hideous variation of this system was the British Enfield service revolver, adopted in 1882. The barrel was hinged both to the lower end of the frame and to the front of the cylinder, so that when the barrel was broken downward, the cylinder was hauled straight forward along its permanent axis. The outcry against this lemon was so insistent that it was discreetly withdrawn from service and replaced with the Webley, the gun which should have been adopted in the first place. A perfect example, this, of an „in house“ design's being adopted for no better reason than that it was hatched on the premises.

Most of the Enfields seem to have been dumped off on the Canadian Northwest Mounted Police, where they remained in use until replaced by the Colt New Service.

It has certainly worked out in practice, and evidently seemed at the time as well, that the logical alternative to the breakopen-automatic ejection system would be a solid frame revolver with a cylinder mounted on a crane to swing sideways out of the frame for unloading and reloading. This arrangement later became known as „hand ejection,“ as opposed to „automatic ejection,“ since the extractor star, which cleared all chambers at once, was activated by thrusting the ejector rod (a forward extension of the cylinder axis) briskly rearward by hand. Such a gun would offer the strength and ruggedness of a solid frame, and yet could be emptied and reloaded almost as fast as a breaktop. And it was just such a gun which Colt introduced in 1889, in time to enjoy brief notoriety as the regulation U.S. sidearm of the Cuban and Philippine imbrolios.

The idea, however, was not a new one even then. Captain A. Albini, an Italian Naval officer, had taken out British patents on precisely this system in 1869, and his work had been anticipated in the United States by William Mason, then a designer at Remington, whose first sideswing patents were filed in 1865. Mason continued working on swingout cylinder designs while factory manager at Colt from 1866 to 1882, and later while employed at Winchester. His Winchester designs, excellent and highly advanced for their day, were discreetly shown to Colt management, who, after examining them, thought it best to discontinue the recently introduced Colt Burgess lever action rifle, which was promising to give Winchester very stiff competition in what had heretofore been more or less their private fiefdom.



The Spanish-War Colt was the gun the Army ordered Smith & Wesson to copy, and it thereby became the prototype for all modern American double-action revolvers of any consequence. Note the absence of cylinder stop notches on the Colt cylinder. It was hoped that the two-point hand would have a rigid enough engagement with the ratchet teeth to lock the chamber in line with the barrel; of course it did not.



The swing-out cylinder, simultaneous ejection system (called hand ejection) was introduced by Colt in 1889 and is now universal on the best quality American and many European d.a. revolvers. Shown here is a Smith & Wesson Model 60.

Meanwhile, the designs Mason had done while at Colt were put into production, and, as far as the ejection system goes, have remained virtually unchanged for over three quarters of a century. This impressive track record, coupled with the fact that virtually every manufacturer of high quality double action revolvers has since followed suit, doubly underlines Colt's sagacity in choosing the Mason system for their first simultaneous ejection revolvers. They were none too early, however, for in the latter 1800s the great Hartford firm was in an excellent position to be forced out of the marketplace.

For the duration of Smith & Wesson's Rollin White patents, Colt had been compelled to hunker on the sidelines peddling muzzleloaders when and where they could, while Smith & Wesson enjoyed a monopoly on cartridge revolvers. The adoption of the Single Action Army in 1873 by the U.S. military, at a time when Smith & Wesson was tied up with the Russian orders, gave Colt a breather, but little excuse for breathing easy. When Smith & Wesson was free to turn their attention back to the domestic market, it would soon become evident that Colt was again far outclassed technologically by their Springfield competitors, and boxed in as relentlessly by the Dodge-King patents as they had been previously by the Rollin White patents.

Mason's designs, with which Colt had been actively experimenting for the past decade, constituted the sleeve cards which Colt played, with stunning effect, in 1889. Thanks to Mason, the last U.S. service revolver, like the first, would be a Colt.

During the Spanish-American War, the United States Army, favorably impressed by the robust Colt, let an order for 3,000 revolvers to Smith & Wesson with the stipulation that, among other things, they must have solid frames, swing-out cylinders, and employ the handejection system. The acceptance of these specifications must have grated on Smith & Wesson's pride.

But with no more 140,000-gun orders from the Czar to occupy them, they obviously felt it prudent to avail themselves of whatever tidbits fortune cast their way-in this instance a paltry 3,000 guns built to look like and act like Colts. But if the Spaniards made a stiff fight of it...there lay the chance.

Smith & Wesson easily sidestepped the feeble Colt patents by altering the cylinder latch from a pull-back to a push-forward arrangement, and tooled up to produce the gun the Army wanted. Hostilities petered out before they had completed the first 3,000, and with war's end died any hopes of further United States military orders. The gun, however, became the famous Smith & Wesson Military and Police Model, the service sidearm of most United States law-enforcement officers, and the design from which Smith & Wesson's entire line of modern revolvers has evolved.

The hand ejector revolver is unloaded by disengaging the cylinder latch, swinging the cylinder sideways out of the frame, and thrusting the ejector rod vigorously rearward to expel the empty shells from the chambers. Since all chambers are cleared at once, loaded rounds obviously get dumped along with the fired ones. Since the ejection stroke is manual rather than automatic, however, a half stroke will loosen the fired cases to be plucked out individually between thumb and forefinger if time permits, while conserving the loaded rounds in the chambers.

The primary drawback of hand ejector revolvers is that a brisk stroke on the ejector rod only rarely results in an empty cylinder. This is not an inherent fault in the system, but is rather to be blamed on other design characteristics of the guns in question.

Snub nosed revolvers, for instance, very often have ejector rods substantially shorter than an empty .38 Special case, hence cannot hope to clear the chambers. Colts are not too bad in this respect, but the small S&W's, whose ejector rods must be bobbed off to allow placement of the forward locking lug, and Charters, whose theoretical ejection stroke is half preempted by the locking collar, are prime offenders.

On larger revolvers, it is almost a standing rule that the innermost casehead will ram the left grip panel, thus stonewalling the whole operation. The Colt Diamondback is the only revolver to our knowledge which is built with a left grip panel properly contoured to allow a full, unobstructed ejection stroke.

There have, of course, been other ejection systems in the past. The Galand and Somerville of 1868, a popular privately purchased officer's sidearm all over Europe, and believed to have been adopted by the Russian Navy, used a barrel-cylinder ensemble which tracked forward on a prolongation of the cylinder axis, leaving the cases held by a star extractor back near the breechface. The Merwin and Hulbert, a popular revolver in the United States during the last part of the nineteenth century, used a similar arrangement.

It would be a shame to close this discussion without evoking a, as it turns out not-so-fanciful, phantom from Colonel Bornecque's storehouse of mechanical monstrosities, or so they seemed to him. Bornecque was a studious author of military manuals back at the turn of the century. Each time a technical or mechanical improvement appeared, the cautious colonel was automatically against it. His pathological distaste for progress, coupled with his lofty professional conscience and his passion for minutiae, made him an interesting, if sometimes comic, commentator. The revolver under discussion was a Swiss 7.5mm Schmidt, „equipped with a Krauser-type ejector...located to the right of the cylinder axis; it is activated by the impact of the falling hammer so that the cartridge case from the preceding shot is expelled with each new shot fired.“ That's clear enough. To continue, „This arrangement, which seems so laudable at first glance, presents, however, serious drawbacks for military use: the ejector saps considerable energy from the hammer impact, and if the cartridge cases stick in the chambers, or if the ejector itself binds in its housing [„That is going a bit far,“ comments Josserand.] misfires are apt to result.“

There have, in fact, been a number of patents for automatic ejectors on revolvers, of which several managed to reach limited production; besides the Krauser, the 1880 Sederl and the Silver and Fletcher of 1884 are examples. Prior to 1914 Manufrance marketed a .25 based on a similar principle.

CARTRIDGE CAPACITY

„Revolver“ and „six-shooter“ are practically synonymous terms, and it is certainly a fact that today, just as in the early days of the wheelgun some hundred and thirty years ago, most revolvers hold six cartridges.

Five shots are another common complement, dating back to the origins of the revolver. Today, ultrasmall concealment .38s such as the Smith & Wesson Chief's Special and the Charter Undercover are frequently given five-shot cylinders to reduce their diameter. But the first S & W revolver, a .22 rimfire introduced in 1857, was a seven-shooter, and by the time it

was discontinued in 1878, some 250,000 had been made in several variations. Remington, between 1878 and 1888, made their Iroquois .22, also with a seven-shot cylinder; and during the same era Merwin and Hulbert were making a seven-shot .32.

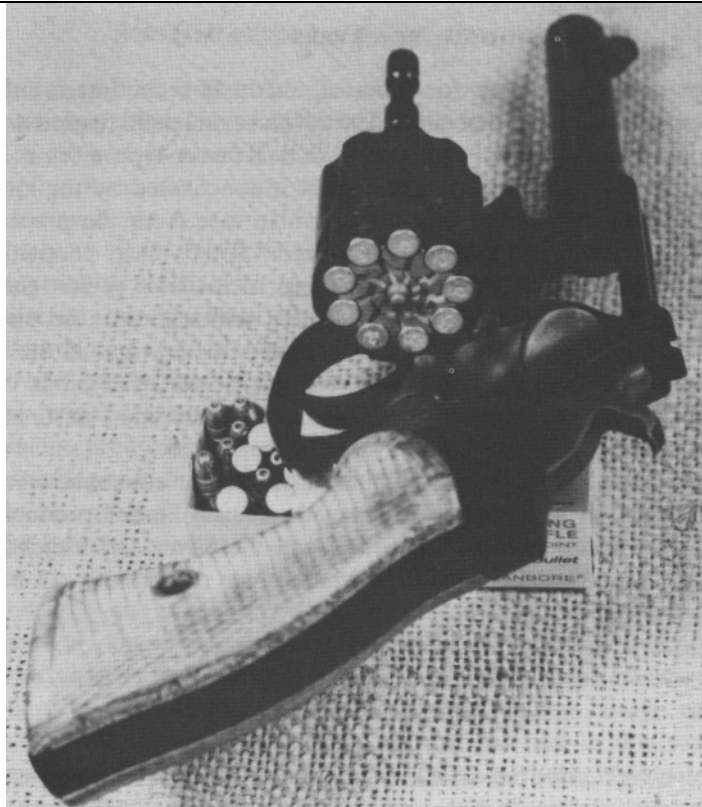
A rarity is the four-shot revolver, but at least one, the Colt Cloverleaf .41, has been produced.

Today Iver Johnson .22s carry eight-shot cylinders, while Harrington and Richardson and High Standard rimfires are usually nine-shot affairs, as are those offered under the J. C. Higgins trade name by Sears, Roebuck.

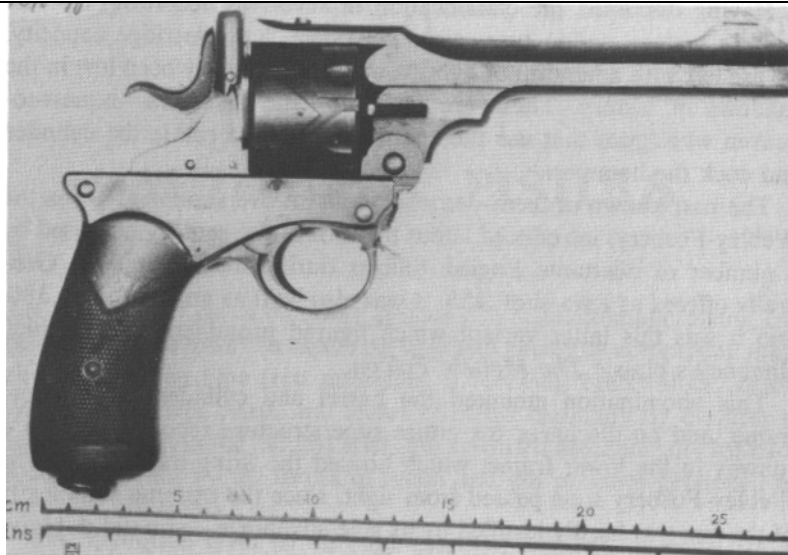
Up another few notches, Manufrance, around the turn of the century, produced their „Explorateur“ and „Explorateur Mitraille“ models, twelve-shot revolvers in 6mm Velodog and 6.35mm calibers. We can regret the disappearance of the „Réglementaire-Stand“ (Official Match), a twelve-shot 6mm rimfire based on the French Mle 1892 service revolver, but not that of the „Redoutable,“ a twenty-shot monstrosity with over-under barrels and two offset tiers of chambers in its monumental cylinder.

So much for the small-bores. More than six shots in a large-caliber revolver is unusual. Nevertheless, a Lefauchaux 9mm pinfire held ten. The Belgian Nagants and Piepers of circa 1895 held seven, and the Austro-Hungarian Model of 1898 was an eight-shot. Prior to World War 1, Manufrance, in their line of what they termed „reinforced revolvers,“ cataloged two big-bores, the ten-shot African model for the 8mm Mle 92 French service cartridge, and the „Terrible,“ aptly named cousin of the „Redoutable,“ but in .32 caliber with a 16-shot cylinder. Even more businesslike, perhaps, was the .42 Le Mat of American War Between the States War fame, whose nine-shot cylinder used an 18-gauge shotgun barrel for its axis pin.

As for what capacity is tolerable or practical, we might note that in .25 caliber and smaller, you can go up to ten shots before they get ungainly. Up to .38 caliber, seven-shot cylinders are practical, but above .38 you have to build monsters to get in a single extra chamber beyond six.



Nine shots is a common cylinder capacity for .22 rimfire revolvers like this High Standard Sentinal.



The Webley-Fosbery, had it not been so enormous, would have been the fop's gun of all time.



The Spanish Zulaica automatic revolver is both ultrasmall and ultrarare. This one is in the Beretta collection.

Having discussed the classification of revolvers according to their ignition system, action type, ejection system, and cartridge capacity, we are left with a handful of hybrids which have nearly been lost in the shadows of history. These are the automatic revolvers-honest-to-heaven wheelguns that use the energy of recoil to rotate the cylinder and cock the hammer.

The best known of them-to open with an overstatement-was the Webley-Fosbery, introduced about the turn of the century and used by a number of dilettante English officers during the Great War. Generally offered as a six-shot .455, it was also built as an eight-shot .380, and it was this latter variant which figured prominently in Dashiell Hammett's classic *The Maltese Falcon*.

This abomination mounted the barrel and cylinder in an upper frame, and on discharge the entire superstructure recoiled back in a runway in the lower frame, which housed the firing mechanism. The Webley-Fosbery soon passed from sight, since the extreme complexity of the gun was hardly justified by its sole advantage-you did not have to cock it except for the first shot. And since it was not double-action, it did have to be thumb-cocked for the first one.

Other automatic revolvers from the 1910 era were the .22 Zulaica, the Belgian Van der Haegen, and the American Union Automatic Revolver in .32 S & W.

Most „automatic revolvers“ spring from the technically meager minds of imaginative mystery writers, but not this lot!

[4]

AUTOMATIC PISTOLS

AN AUTOMATIC pistol or, more properly, a semiautomatic pistol, can be defined as follows: „a repeating handgun generally comprising these elements: a box-type feed magazine, a recoiling breechblock, and a system of springs, cams, and levers operated manually by the firer to ready the weapon for the first shot, but operated mechanically for each succeeding shot by the forces of recoil and gas pressure generated by cartridge discharge.“



This turn-of-the-century Italian prototype is far from the simplest of automatic pistols. Evidently the bolt recoils back within an enclosed cavity in the frame. The donkey-ear cocking lever on the right side is for making the first shot ready.

The definition gives us only the essential elements as concisely as possible. To develop it further: the barrel may be either fixed or mobile; the recoiling breechblock most likely will consist either of a bolt moving inside the receiver or a side assembly which mounts thereon. An automatic pistol almost always comprises:

- a barrel, fixed or mobile
- a slide, bolt, or mobile breechblock of some other type containing the firing pin or striker (blowforward pistols excepted)
- a recoil spring or several such
- a frame, containing the trigger group -a cartridge magazine, either removable or fixed, and located either in the grip or ahead of the trigger guard.

Automatics function by five possible systems:

- 1-fixed barrel; only the breechblock recoils
- 2-short recoil of barrel
- 3-long recoil of barrel
- 4-barrel moves forward (blowforward system)
- 5-gas operation.

This classification is a modification of that proposed at the end of the last century by General Wille in his book *Selbstlader Fragen*. The situation as he saw it:

- 1-fixed barrel with recoiling bolt (or slide)
- 2-mobile barrel and recoiling slide
- 3-gas operation
- 4-blowforward barrel and stationary breech.

Despite the fact that Wille failed to distinguish between short recoil and long recoil, his is clearly superior to the French classification of the day:

- 1-fixed barrel, mobile breech
- 2-gas operation
- 3-blowforward.

The anomaly of lumping, for want of a better idea, both „short recoil“ and „long recoil“ under the heading of „fixed barrel“ is as obvious as it is incorrect. An Austrian specialist, Kaisertreu, in his book, Primary Properties of Automatic Weapons, gives his classification as follows:

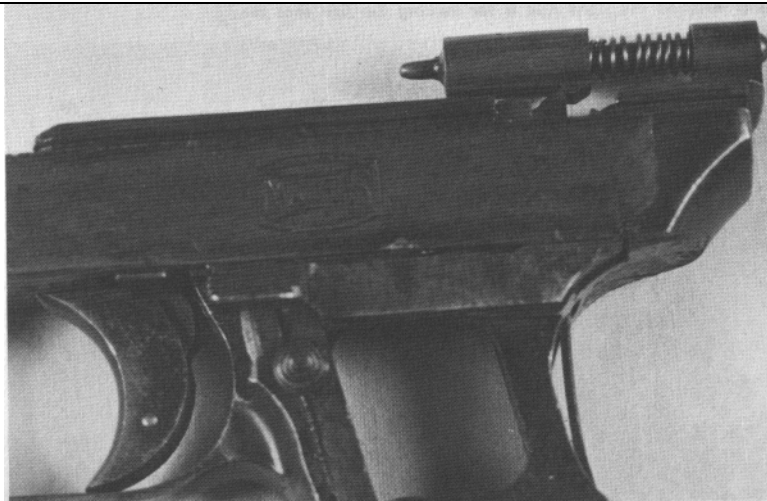
1-Application of gas pressure. (He did not mean „gas operation“.)

- A. unlocked breechblock
- B. friction-retarded breechblock
- C. strongly retarded breech

2-Recoil of weapon

- A. utilization of the recoil of the entire weapon
- B. long recoil
- C. short recoil.

This classification is complicated, not to say unintelligible, and virtually requires an engineer's analysis of the weapon to decide in which category it belongs. Kaisertreu concerned himself only with mechanics, disregarding ballistic considerations, and totally ignoring both gas operation and blowforward systems-an unpardonable oversight.



The slide of this 1910 Mouser has been removed to show the cocked striker held back by the sear. When the trigger is pressed, the sear will release the striker to spring forward through its tunnel in the slide and fire the chambered cartridge.



Cutaway Beretta .25 shows striker fully forward, its nose protruding deep into the empty firing chamber. Had a round been chambered, its primer would have taken quite a blow; striker-fired weapons have no hammer.

Lest we confuse the issue too much, we repeat the five possible semiauto systems as we see them now:

- 1-fixed barrel; only the breechblock recoils
- 2-short recoil of barrel
- 3-long recoil of barrel
- 4-barrel moves forward (blowforward)
- 5-gas operation.

Back in the 1890s these five systems started out on equal footing, and one had as much chance of survival as another. History, though, granted them different destinies, and today we find only the first two types being used in modern semiauto pistols. Types 3 and 4 are to be found in artillery and antiaircraft guns as well as in shotguns, and the fifth type is used in virtually all our current automatic rifles. We shall examine each of these operational systems, the better to understand why only two of the five have survived in handguns.

I. Fixed Barrel

This is the most common and generally the least complicated arrangement. Because the recoiling element-the bolt or slide assembly-is not mechanically locked to the barrel at any time, but opposes the pressures generated by the exploding cartridge by inertia and spring tension alone, Type 1 weapons are usually called „blowbacks.“

Because the bullet is so light in comparison with the slide, there is ample time for it to leave the barrel and for pressure to fall off to a safe level before the breech begins to open. Virtually all .22 rimfire and .25 caliber autopistols are blowbacks, and so are most of the .32s and .380s. When pressures approach the level of those generated by the Comm Parabellum, a more substantial breechup is called for, but we shall deal with that later.

Sequentially, this is what happens in a blowback pistol when the shooter presses the trigger:

- 1-ignition, when the firing pin hits the primer
- 2-the bullet leaves the muzzle, pushed by the gas pressure built up by the burning powder charge
- 3-the slide or bolt begins to recoil back, compressing the recoil spring and cocking the hammer or striker
- 4-the cartridge case is pulled from the chamber by the extractor hook on the front of the slide
- 5-the case is ejected as the slide moves fully rearward (end of rearward cycle)
- 6-decompression of the recoil spring hurls the slide forward
- 7-a fresh cartridge is fed into the chamber
- 8-the extractor snaps over the rim of the case
- 9-the breech is fully closed.



Blowbacks are the least complicated self-loaders, and the Walther 1932 is typical of the lot. The barrel is pinned rigidly into the frame; it cannot move at all. The slidebreechblock is held forward by the recoil spring under the barrel. On firing, the cartridge case has only to overcome the inertia of the slide to cause it to recoil and function the weapon.



The .380 Mauser HSc is one of the best of blowback pocket and belt pistols. Here the shooter is on target, squeezing the trigger double-action to fire the first shot.

The arm is ready to fire again; so is the shooter, in principle, but that is another problem.

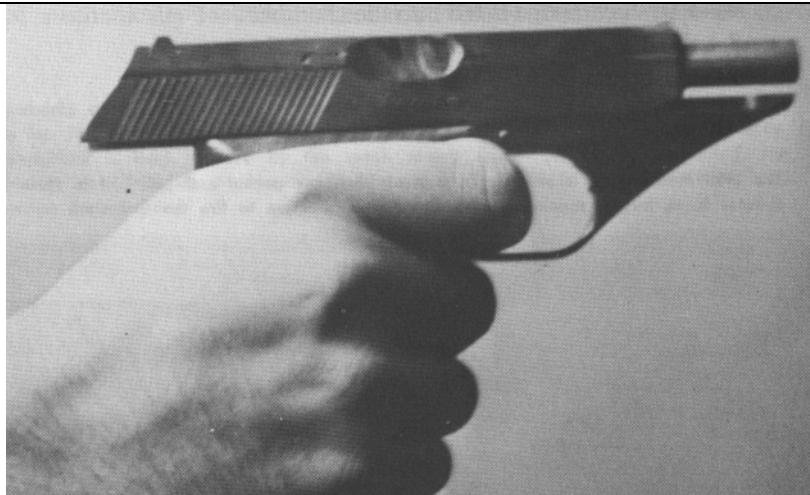
There is an important variant of the unlocked-breech system: the barrel is still linearly stationary and the slide alone recoils, but it does

so against a braking arrangement. Before the turn of the century, handgun designers lived in dread of a premature opening of the breech, and the unhappiness which inevitably results from such an occurrence. Thus they designed into the weapons various devices which would slow the opening of the breech without actually locking it to anything. Niotan called these arrangements „friction locks,“ and the usual English term for weapons using them is „retarded blowback.“

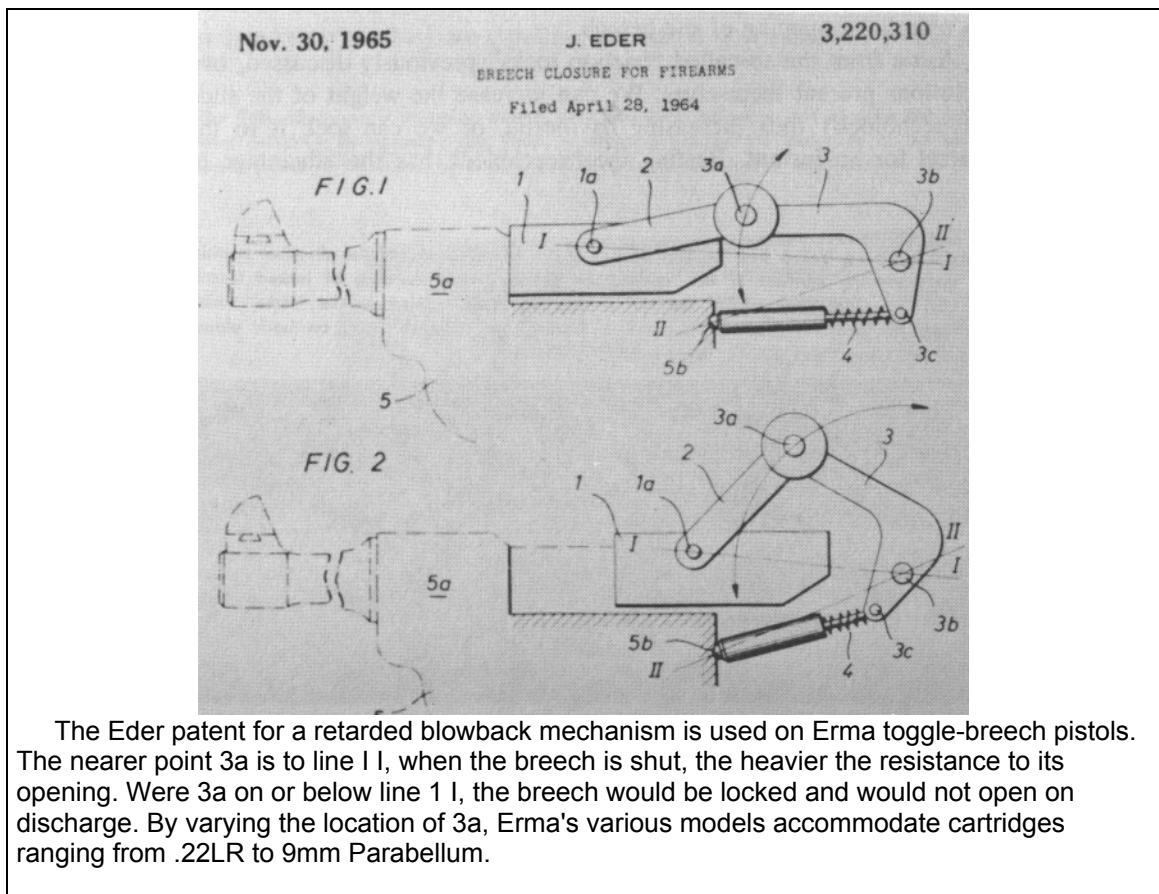
The retardation was generally achieved by means of a tipping wedge or angle block located beneath the slide which rubbed against a friction face on the frame (Schonberger system). Various cam surfaces, low-pitch interrupted threads, and such were also employed, the best known of which was the controversial „Blish lock“ on the first Thompson submachine guns. Aside from the Schonberger, the most notable retarded blowback pistols were the Bergmann of 1893, the Schwarzlose of 1894, and the Hellfricht of 1898. All were complicated and of dubious virtue, and the retarded blowback idea has generally been abandoned in favor of the short recoil system. There remains, however, a clear possibility that new designs, or new applications of old designs, could push retarded blowbacks back into vogue. The 1910 and 1917 Savage pistols used a rotating-barrel system. The barrel recoiled almost imperceptibly, and separated from the slide after 5 ° of rotation. The Pederson-designed Remington Model 51 of circa 1918 had a perfectly stationary barrel, and a separate breechblock within the slide. On discharge the breechblock moved rearward only far enough to impulse the slide before abutting a locking shoulder on the frame. The breechblock then was held in place until the slide traveled far enough rearward to cam it out of lockup. The recently introduced Heckler & Koch P9 achieves the same sequence as the Remington M51, but via a G3-type roller-lock arrangement.



The bullet has left the barrel, the slide is in midrecoil, the case has just struck the ejector and is partway out the ejection port.



The slide is at full recoil, the hammer is cocked, and a wisp of smoke curls out of the ejection port. The recoil spring will now decompress, running the slide forward and chambering a fresh cartridge. The shooter will need only to release the trigger and squeeze it again to fire another shot.

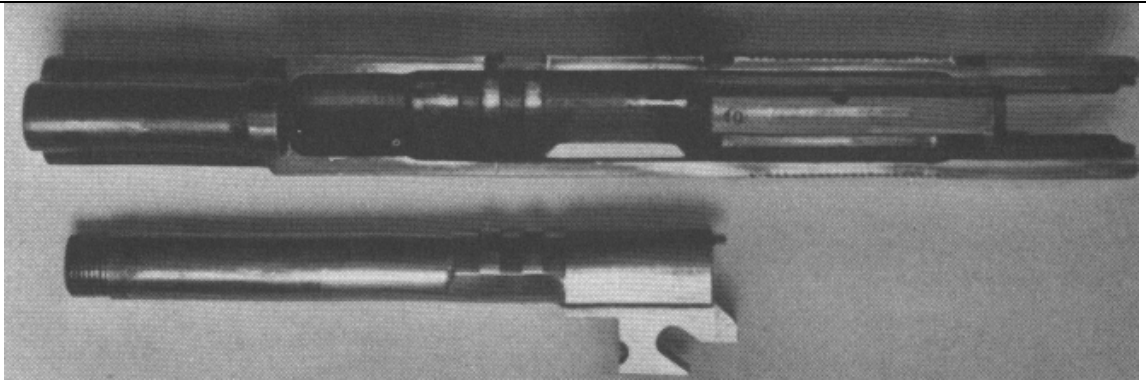


II. Short Recoil

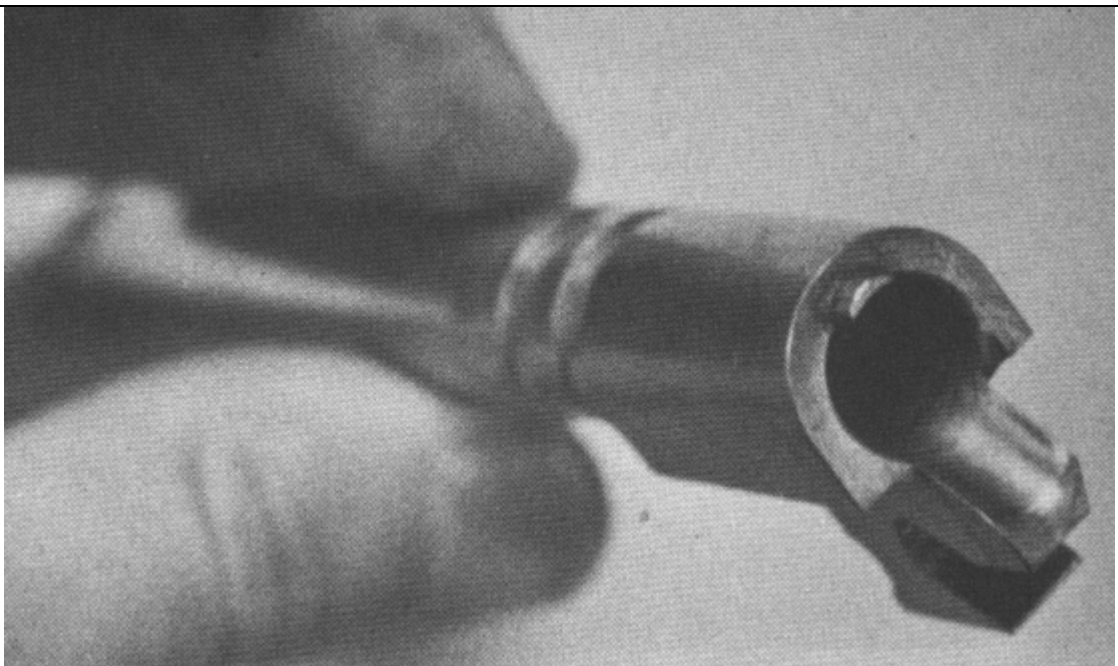
This is the system generally used for pistols chambering the 9mm Parabellum and up on the power scale. It is a complicated arrangement, but necessary in order to avoid letting the breech open before the bullet exits from the muzzle. The gasses have only one predilection: to push against something—either the bullet, the breechblock, or the walls of the barrel—until it gives way and lets them escape into the atmosphere. Obviously if the breechblock does not resist the pressure against it for a long enough period, superheated high-pressure gasses will rupture the case and rush backward to the general detriment of gun and gunner alike. It is in everyone's best interest then to retard the opening of the breech.

Aside from the so-called „friction locks“ previously discussed, two solutions present themselves. We can increase the weight of the slide (breechblock) thus increasing its inertia, or we can lock it to the barrel for an instant. Beefing the breechblock has the advantage of simplicity, but the disadvantage of weight, obviously. A pistol is supposed to be portable. A locking together of slide and barrel is therefore to be preferred.

Generally, the barrel will be machined with several lugs on top which lock into corresponding mortises inside the roof of the slide. Thus engaged, the two recoil backward together. But after say 1/10 inch of travel, a canted heel on the barrel abuts against a cross pin or a cam ramp on the frame, pulling the barrel down into the frame and freeing the slide to recoil the rest of the way alone. By this time, the bullet is long since on its way, and pressure has fallen off to a safe level.



Classic Browning lockup has two ribs on top of the barrel ahead of the chamber seating in corresponding mortises in the roof of the slide. After a distance of locked travel, the cam ramp on the heel of the barrel struck a cross member in the frame, which cammed the barrel down and stopped it, freeing the slide to travel on back alone. These parts are from a Swiss experimental pistol.



The feed ramp on a Browning-type pistol guides the round from the magazine into the chamber. The unlocking cam ramp is located below and forward of the feed ramp.



The Colt .45, an early Browning design, uses barrel rib lockup in roof of slide. But rather than unlocking by opposing cam faces, a swinging link on the underside of the barrel lug is joined to the frame by a cross pin. The gun is here locked and ready to fire.

There are, of course, myriad other ways to achieve barrel-breechblock lockup than the Browning system just described. On the Luger pistol, for instance, knobs on either side of the middle unit of the breechblock assembly hit a cam ramp at the rear of the frame, breaking the „knee“ joint of the assembly, collapsing the center section upward while the breechblock proper-the frontmost of the three units -travels on back in a straight line.

This is the operational cycle of short-recoil pistols:

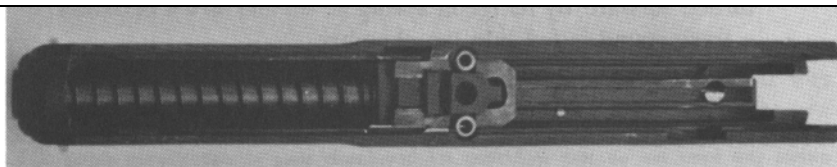
- 1-trigger releases hammer or striker
- 2-percussion and ignition
- 3-bullet exits muzzle
- 4-barrel and breechblock recoil together, compressing recoil spring
- 5-unlocking; the barrel ceases rearward movement
- 6-the slide continues to recoil, extracting the case
- 7-ejection (end of rearward cycle)
- 8-decompression of recoil spring forces slide forward
- 9-fresh cartridge is fed into chamber
- 10-slide picks up barrel; extractor snaps over cartridge rim
- 11-slide and barrel continue forward until they lock together in batterv position.



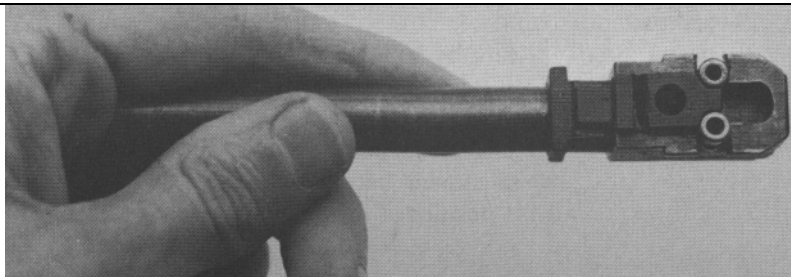
As soon as the slide begins moving rearward in recoil, the swinging link pivots the breech end of the barrel down, unlocking in from the slide.



The Czech Model 52 service pistol is a short recoil design using an unusual roller-locked breech.



When in battery, slide and barrel are locked firmly together by two rollers. The recoil spring that surrounds the barrel pushes the slide forward at the muzzle, and pushes the roller cam rearward at the back, forcing the rollers out into the slide walls.



When the gun discharges, the slide and barrel recoil lock together until the back end of the roller cam strikes a stud in the floor of the frame, which forces the cam forward, letting the rollers retreat into the barrel lug, freeing the slide to recoil alone.

III. Long Recoil

The object here is the same as with short recoil-to give the bullet time to ship out before the breech opens. The barrel and slide remain in union all the way back. Then the barrel returns forward under spring tension, and when it has returned to its initial position, the slide is freed to move forward and rejoin it.

The Gabbett-Fairfax Mars adds another trick to the routine: the barrel and breechblock recoil together, just as we have described, then the barrel returns forward. But the breechblock is not permitted forward movement until the shooter releases the trigger.

Again the sequential breakdown:

1-trigger releases striker 2-percussion, ignition 3-bullet exits muzzle 4-barrel and slide recoil together compressing two recoil springs (end of rearward cycle)

5-decompression of the barrel recoil spring returns the barrel forward; extraction

6-ejection

7-when the firer releases the trigger or when the barrel is fully forward, the slide catch is tripped, permitting the slide to be returned forward by its recoil spring

8-a fresh round is fed into the chamber

9-slide and barrel assume battery position.

IV. Blowforward

This fourth type is rather an oddball, and uses the force exerted by the bullet against the rifling inside the barrel to function the arm. The bullet, in effect, forces the barrel forward, shucking it off the case, which is held against the stationary breechblock. After tripping an ejector at the limit of forward travel, the barrel is returned rearward by the recoil spring and envelopes a fresh cartridge.

Sequence:

- 1-hammer release
- 2-percussion, ignition
- 3-barrel forced forward by bullet, compressing recoil spring
- 4-bullet exits
- 5-extraction and ejection (end of forward cycle)
- 6-recoil spring begins moving barrel back
- 7-a fresh cartridge is positioned for feeding
- 8-barrel returns
- 9-cartridge enters chamber
- 10-barrel abuts breech...

and the arm is still not ready to fire, because no action has taken place to cock the hammer. This must be done manually by the shooter for each shot. The generals of the day thought this was a thoroughly laudable feature, since it would prevent „wasting“ ammunition. We shall have further occasion to note this progress phobia which seems always to have beset our most influential military minds. The Mannlicher Model 1894 and the Wincklar were the best-known guns meeting this description. The only other blowforward to have achieved any measureable success was the Schwarzlose Model 1908. Unlike the Mannlicher and Wincklar, the Schwarzlose did have provisions whereby the hammer was cocked automatically as the barrel returned rearward.



This pistol by Rudolph Frommer of Budapest appeared in 1901, chambered for a unique and underpowered .32 cartridge called the 7.65 Frommer (4mm shorter than the .32ACP), and is of interest primarily because of its long recoil action. The bolt and barrel recoil all the way back together. As the barrel starts forward, it unlocks itself from the bolt. And when the barrel is fully returned, the bolt goes forward to rejoin it, chambering a fresh cartridge on the way.



Frommer had this thing about long recoil pistols. His „Stop“ model, introduced in 1912 in .32ACP, saw service in the Austro-Hungarian Army during World War 1. The long recoil system requires two recoil springs: one for the barrel and one for the bolt, an incredible complication in guns chambered for cartridges that do not need any lockup at all. Note backstrap grip safeties on both Frommers.

V. Gas Operation

The harnessing of the powder gasses themselves to function the firearm is today used only in shoulder weapons such as semiautomatic rifles, light machine guns, and shotguns, which are large enough to contain the complex of pistons, tappets, carriers, and such involved.

The principle is as follows: the gas pushes the bullet down the barrel, along which at some point, usually near the muzzle, is drilled a small hole which communicates with an expansion chamber located above or beneath the barrel. As soon as the bullet passes this port, a small portion of the gasses is bled off into the expansion chamber where they engage a piston head on the operating rod. The operating rod is pushed backward, and carries the bolt with it.

Why does the bolt not just recoil back as soon as the cartridge fires? Because it is locked into the receiver or frame, and the operating rod is made to recoil alone for a short distance before it begins to cam the bolt out of lockup. The United States M1 Garand rifle is the best known of many using this or similar systems. Although the first semiauto pistol, the Clair of 1887, was gas operated, this mode of operation has seen precious little use in handguns since.

The operational sequence for gas operated weapons is thus:

- 1-cartridge discharge
- 2-bullet passes gas port
- 3-gasses bleed off and impinge on the piston-operating rod
- 4-operating rod cams the bolt out of lockup
- 5-bolt and operating rod or carrier recoil together, compressing the recoil spring
- 6-extraction
- 7-ejection
- 8-magazine follower forces a fresh cartridge up to feed position (end of rearward cycle)
- 9-bolt and carrier move forward under tension of recoil spring
- 10-fresh cartridge is fed into chamber
- 11-bolt locks closed, and carrier continues fully forward.



Andrea Schwarzlose made his reputation from his machine gun, Austrian standard in World War I—thus his trademark. Some of his pistols had a great deal of merit as well, but not the blowforward! Note that the breechblock is integral with the frame, and goes nowhere. The gun had an internal hammer, a frontstrap grip safety, and is remembered for its kick.

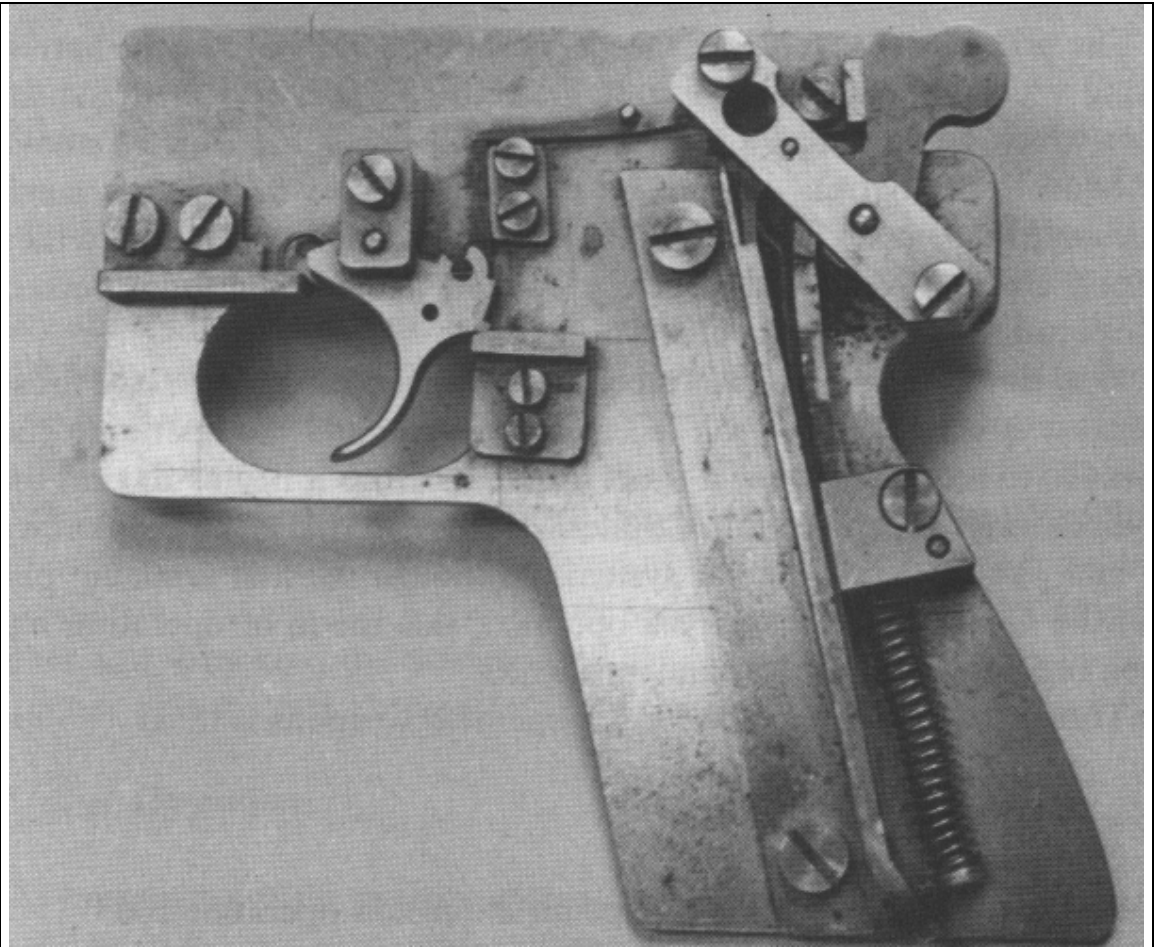
THE FIRING MECHANISM

The bolt of the Gabbett-Fairfax Mars pistol, you recall, remained in a full recoil position until the shooter released the trigger. At this late juncture the bolt was freed to lurch forward and chamber the next round, a routine that must have taken considerable getting used to. The Mars, however, was, in this as in so many other respects, distinctly an odd contraption. Most autopistols are ready to make fire again within a fraction of a second after the preceding shot—long before the shooter has recovered his composure to the extent of releasing the trigger.

Submachine gunners know very well that if their finger dawdles just a bit on the trigger, they have fired two or three more shots than intended. And getting off single shots when the gun is set on full auto can be difficult for an inexperienced operator even though the bolt weighs as much as 15 ounces and has several inches of travel. A pistol, on the other hand, with its light slide traveling sometimes less than an inch, would empty the magazine uncontrollably before the shooter could release the trigger if there were no safeguards built in to prevent this. The first Browning pistols, by the way, were fully automatic, and did just this. As for the „safeguards“ just mentioned, we shall get to them after a quick glance at the surrounding parts of the mechanism which supply their context.

Semiautomatic pistols may discharge by means of a hammer, either internal or external, which hits a firing pin in the slide. Or the firing pin may be beefed up and backed by a heavy spring so that it does the job all by itself, in which case it is called a „striker.“ The piece that keeps the hammer or striker cocked is called the sear, and the engagement notches or faces on the hammer or striker are called sear surfaces. The part that traverses the magazine well to connect the trigger and the sear is called the trigger bar or drawbar.

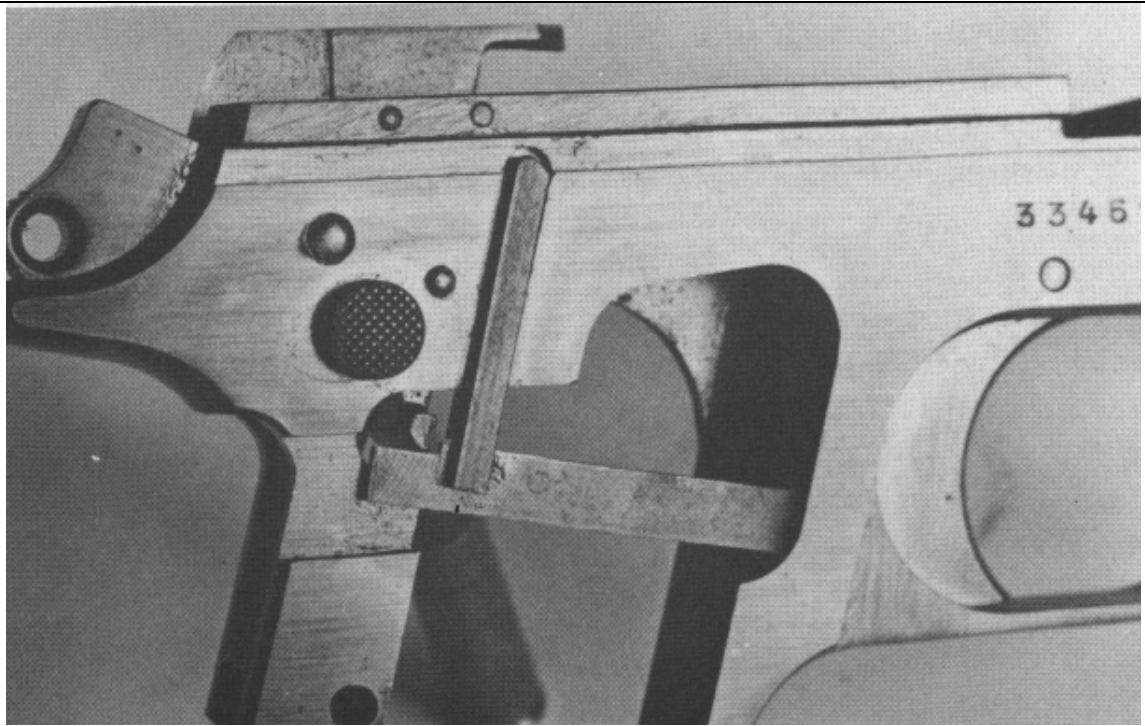
Finally, that all-important little piece which prevents the hammer or striker from falling while the trigger is still pressed back—which keeps the weapon from going „full auto“—is called the disconnecter. It does just that—disconnects the trigger bar from the sear so that the sear is free to catch and retain the hammer at full cock when the slide rocks it back during recoil, even though the trigger remains depressed. When the trigger is released, the disconnecter snaps away and permits the trigger bar to reengage the sear, and a new pull on the trigger then trips the hammer to fire another shot.



The soundness of their modifications of Browning's firing mechanism was tested by Swiss engineers on this action plate-much cheaper than making up a prototype pistol.



The Beretta 1934 has an easily understood, if not particularly straightforward, searage. Trigger pressure is transmitted through the drawbar to the rocker piece, which tips the sear out of the hammer notch, freeing the hammer to fall and strike the firing pin. The long finger extending upward from the trigger bar is the disconnector; it seats in a half-moon cutout in the underside of the slide when the slide is forward. When the slide moves rearward, it pushes the disconnector down, freeing the sear-rocker assembly to hold the hammer at full cock. When the slide returns forward, the trigger bar is underneath the rocker piece. Releasing the trigger after the shot lets the trigger bar move forward and snap up into engagement with the rocker piece, ready to fire again when the trigger is pulled.



The Beretta Model 70 series and Model 951 pistols do away with the rocker piece, and route trigger pressure directly along the trigger bar to the sear. The disconnecter is a separate piece, dovetailed into the frame, but works the same as on the 1934.

The disconnecter is often, as on the Mauser HSc, Walther TPH, and most Italian and Spanish pistols, just a nubbin atop the trigger bar. When the slide recoils back, the trigger bar is automatically cammed down by the slide out of engagement with the sear. On the Colt .45 Auto the disconnecter is a separate part which transmits the trigger pressure to the sear. The trigger bar never actually touches the sear at all. When the slide moves back, the disconnecter is forced downward out of its intermediary position between trigger bar and sear. When the slide returns to battery and the trigger is released, the disconnecter is free to snap up again into place to transmit trigger pressure to the sear to release the hammer and fire the next shot.

Automatic pistols may use any one of the five following firing systems:

- 1-Single action, either striker fired or with an internal hammer. The striker or hammer can be cocked only by pulling the slide back.
- 2-Single action, with an external hammer. May be cocked as above, or by simply thumbing the hammer back.
- 3-Double action, striker or internal hammer. May be fired by pulling through on the trigger; may be cocked for easier let-off by pulling back the slide, or, in the case of the Sauer 38(H) and Heckler & Koch P9S, may be cocked by a thumb lever.
- 4-Double action only. The gun is not cocked by the slide during recoil, but must be cranked off by a double-action pull on the trigger for each shot. Some Steyr, Manufrance, and CZ pistols use this arrangement.
- 5-Double action, external hammer. May be fired by pulling through on the trigger, or may be cocked by thumb or by pulling the slide back.

As we have just seen, autopistol triggers, like those on revolvers, may be classified as single action or double action. Single action means the hammer is tripped from a full cock position by a light pressure on the trigger over a short distance, while in double action the trigger forces the hammer back against the resistance of the mainspring and trips it automatically, after a rather long and heavy pull-through, at the rearmost point of travel.



One of the most most complicated searages is that on the 1911 .45, Trigger pressure goes along the trigger bar to the disconnector to the sear. The recoiling slide pushes the spring-loaded disconnector down out of engagement with the sear.



The 9mm Czech Model 1938, adopted in time for a few to see service in World War II, was double-action only.



The Manufrance Type Armee, in 9mm Browning Long, was double-action only, strikerfired, and noted for its smooth trigger pull. Similar guns were made in .25 ACP and .32 ACP, and their pop-up barrels and recoil spring-transmission bar system had a strong influence on the Beretta Models 950 and 20.



The Walther line of military, police, and defense guns in calibers from .22LR to 9mm Parabellum are all selective double-action and hammer-fired. All except the P-38 are blowback, with the recoil spring mounted around the barrel.



The Llama line of semiautos, in calibers .25 ACP to .45 ACP, are all single-action, hammer-fired, with recoil spring housed underneath the barrel. Of basic Browning type, sometimes modified, they lock with a swinging link in .380 and up, and are blowback in .32 and down.



The Model 1913 Campo-Giro was the Spanish Army's first service automatic, and the ancestor of a long line of Astra high-powered blowback pistols. This is the second model Campo-Giro; the first had a paddle-type magazine release behind the trigger guard.



Two generations of Astra belt and pocket pistols. The Model 4000, at bottom, last descendant of the Campo-Giro, single-action, hammer-fired, and noted for its fine construction, has been succeeded by the selective double-action Constable Model at top. Both guns are .32 blowbacks and both mount the recoil springs around the barrel.



Three generations of Beretta blowbacks. From top, Models 1934, 70, and 90, all hammerfired and the last a double-action. All are in current manufacture.

Double action is advantageous in that it permits the shooter to drop the hammer immediately again on a misfired cartridge without having to recock the hammer manually or jack back the slide. Often a misfire will discharge on a second try.

Even more important, a double-action pistol can be carried without the risk of an accidental discharge if the shooter forgets to set the safety, or flicks it off unknowingly. Putting it more realistically, the double-action feature allows a fast first shot for those whom the notion of carrying a single-action pistol fully cocked makes nervous. It must be noted that double-action pistols function that way only for the first shot. Thereafter, the hammer is automatically cocked by the recoiling slide. The Steyr, Manufrance, and CZ pistols previously mentioned are the exceptions to this rule.

THE RECOIL SPRING

The recoil spring is found inside the slide, and is the strongest and most obvious spring in the weapon. Often, as in the case of the Walther PP and PPK, the 1910 Browning, the Sauer 38(H), the Beretta Model 90, the Mauser HSc, the Heckler & Koch HK4 and P9, and the .22 MAB, to point to only a few examples, it encircles the barrel and uses it for a guide rod. Otherwise it is generally parallel to the barrel, either beneath it as in the case of the Colt 1911 and other Browning-type short recoil pistols, the Unique, and most Berettas, or above it as on the Pieper-Herstal, the Steyr and Bayard Models of 1908, and the Smith & Wesson Model 61.

Short-recoil pistols generally mount the recoil spring beneath the barrel, but the German P-38 is an exception. It contains two rather small recoil springs, and hides them away at the rear of the slide, as do the Japanese Nambus.



The Russian Makarov 9mm blowback service pistol mounts the recoil spring around the barrel (which is permanently fixed to the frame) and uses it for a guide rod. This is an intelligent and very popular arrangement.



Smith & Wesson's Model 61 houses its recoil spring and guide rod above the barrel, an unusual rig-up copied from the 1908 Bayard.



The Beretta Model 950, early issue, used two approximately V-formed recoil springs, one on each side of the handle, a system slightly reminiscent of the .455 Webley and Scott, which used a heavy V-spring bearing on a pivoting transmission arm, which returned the slide. Later issues of the Beretta employed an equally unique wire torsion recoil spring.

Other arrangements are found occasionally. The Luger has a coil spring in the handle behind and parallel to the magazine, which couples to a T-rod pivoted from the bolt. Several Manufrance pistols use a vaguely analogous conception, connecting a handle-mounted recoil spring to the slide by a lever on either side of the magazine. The Beretta Model 20 uses a very similar system, but with two springs, one on either side of the magazine well, mounted vertically.

Another curious rig-up was the Webley-Scott of 1913 which had a heavy V-spring mounted between the right grip panel and the magazine. The spring generally cracked the grip panel in short order.

THE BARREL

Depending on the type of pistol (short recoil or blowback) the barrel is either mobile or fixed. Fixed barrels may be either an integral part of the frame (Colt Woodsman), permanently mounted into the frame (Walther PP, PPK, etc.), or easily detachable (Mousser HSc, High Standard, etc.).

In the case of detachable barrels, any play or rattle is bound to interfere with accuracy, and each manufacturer has his own notions as to the best mounting arrangement. Mauser, Heckler & Koch, and High Standard run a spring-loaded plunger up through the trigger guard which forces a lug on the heel of the barrel back into a recess in the face of the frame. Beretta routes a simple pin through the frame and barrel lug, while Browning, MAB, Unique, and others mate a series of teeth on the barrel to corresponding grooves in the frame, disengaging by a quarter rotation of the barrel.

Barrel lengths commonly run from under 2 inches for some of the .25 caliber miniguns to as much as 10 inches for some .22 target pistols. At the end of the last century, long barrels were in vogue for almost all purposes, with the average measuring about $7\frac{1}{2}$ inches. The modern trend to foreshortening the snout was given great impetus by restrictive regulations resulting from the Treaty of Versailles, which curiously enough outlawed pistols with barrels longer than 10 centimeters (3.94 inches) in Germany and Austria. Today personal defense pistols usually have barrels from 2 to 4 inches in length. Military handguns the world over have pretty well standardized barrel length at about 5 inches. Target pistols and hunting revolvers generally have barrels between 6 and $8\frac{1}{2}$ inches long.

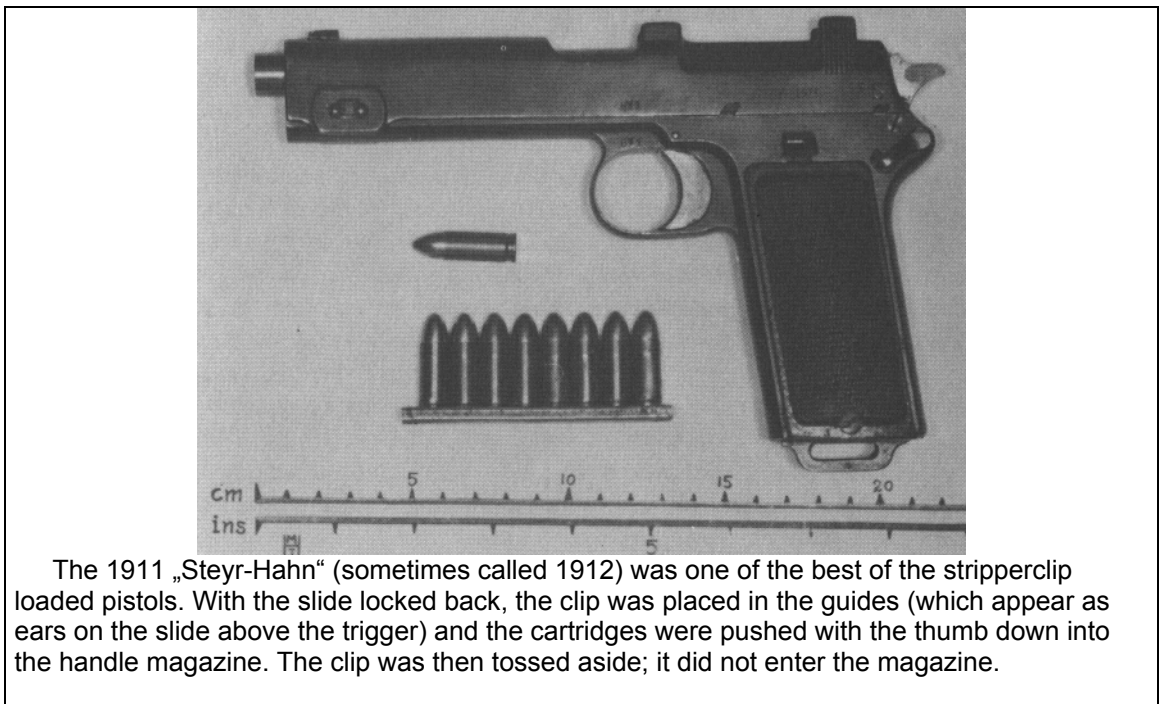
Rifling, with the conspicuous exception of Colt, is normally righthand twist, mostly six-groove, sometimes four, sometimes otherwise. The Americans are fond of five-groove rifling, while the British favor seven, and spin it Coltishly to the left. Practically speaking, it makes no difference.



The Beretta Model 20 uses two vertically mounted coil springs that bear on the heels of twin transmission arms. Similar systems were used on the Le Francois pistols, and on the experimental Mouser HSv, which lost to the Walther HP (later P-38) in German service trials.



Early Bergmann autoloaders used an en-bloc clip-loading system like the M1 rifle. The loading port cover ahead of the trigger was swung open, a clip of cartridges placed inside, and the door shut again. There were dozens of variations on the Bergmann pattern. Basic models are 1893-1895.



FEED SYSTEMS

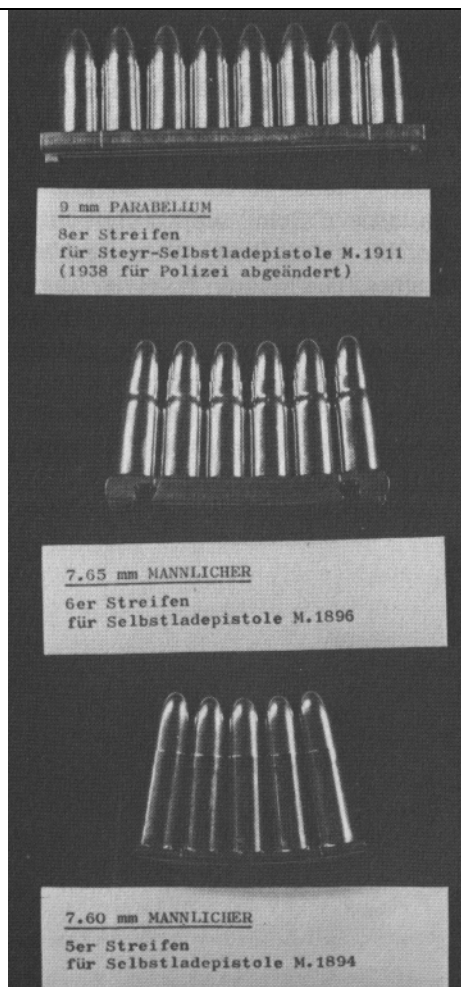
An automatic pistol must, of necessity, have a cartridge magazine, which may be either fixed or removable according to the particular weapon.

Let us backtrack a bit though. The first autopistol magazine was tubular, and mounted inside the handle of the Clair Model 1887/88, which copied it from the underbarrel magazine tube of the Lebel rifle. The Lebel itself had picked up the notion from the Kropatschek, which had plagiarized the Winchester and Henry carbines, themselves derived from the Hunt and Jennings rifles and Volcanic and Smith & Wesson pistols of the mid-1850s. The Spencer carbines and rifles of America's War Between the States fame also used a tubular magazine, and were closer to the system Clair later adopted, since the tube was in the butt rather than under the barrel. Inconvenient and awkward to load, the tubular magazine was out of place on a pistol, and the idea got no further than did a few tentatively considered rotary magazine systems.

Prior to 1895 most magazines were fixed, with a cartridge follower as part of the mechanism of the gun, and were loaded either with dis-

posable Springfield-type stripper clips or with an en-bloc clip that entered the gun and was ejected at the last shot. The best-known enbloc clip is that for the United States M1 Garand rifle, but older readers will remember bolt-action Mannlichers and the French models 96 and 16 carbines and 7/15 rifle as well.

In 1893 the Borchardt pistol introduced the detachable box magazine housed in the grip, which is universally used today, and this excellent device was, as could have been predicted, staunchly resisted by the eternally retrogressive spirits on the French General Staff, who saw nothing but advantages in the stripper clip and en-bloc clip systems, and who considered it quite negligible that they were difficult to handle in combat. Indeed, they regarded this difficulty as a sterling merit. Who cared if the soldier were at the mercy of the enemy while trying to reload the clips or the weapon under the worst of conditions? While fumbling with the gun, he would not be wasting ammunition! An exaggeration? Listen to Captain Niotan of the Belgian army, a highly respected authority in his day. „This necessity [of refilling the clips] constitutes a most salutary brake on the nervousness of the shooter, and checks the tendency to fritter away ammunition.“ Is that clear enough?



An assortment of stripper clips for early autoloaders from the Hans Erlmeier collection. The one at top was for the 1911 Steyr modified to 9mm Parabellum for German police use in World War II.

One of the more enlightened minds of the era, Lieutenant Colonel Victor Leleu, put things in their proper perspective when he said, „This ancient horror of wasting ammunition rears its head again every time progress is made in speeding up the process of reloading.“ And a high-ranking officer, whose identity has unfortunately been lost, noted, „It has to be admitted that one can completely waste the ammunition he fires without having fired it too quickly.“ Well said. And at the same time Colonel Hartmann of the German army was opposing clip loading in favor of the box magazine, as was Captain Federov of the Small Arms Committee of the Russian Artillery Staff.

The en-bloc clip had been abandoned in pistols by 1918. The stripper clip still had its boosters, as Mauser continued to manufacture its famed „Broomhandle“ Model 96 for the Soviets. Called the „Bolo Mauser“ in this instance („Bolo“ supposedly being short for „Bolshevik“), it was notable for its shorter-than-usual barrel, required by the Treaty of Versailles. The Mauser, however, was soon altered, and the 96/32 featured a box magazine inserted into the gun from beneath and holding either ten or twenty rounds. Obviously Lieutenant Colonel Leleu would have preferred this model.

In actual practice, we may say that for the past forty years automatic pistols have with rare exceptions used detachable box magazines generally holding from seven to nine rounds in the midpower range (.32 to 9mm), six or seven rounds for the .25 caliber, and ten rounds for .22 Long Rifle; the most notable exceptions have been the Browning P-35 High Power with its thirteen rounds of 9mm Parabellum, and the twelve-shot prewar Walther .22.



Magazine loading reached its apex in this 1906 Swiss Luger with experimental shoulder stock by Waffenfabrik Bern. The long magazines are housed in the woodwork.

LOCATION OF THE MAGAZINE

If the handle of the pistol now seems the proper place for the magazine, such was not the case before 1914, when partisans of two opposing schools of thought were in heated debate: where should the magazine be placed, inside the grip or ahead of the trigger guard? We have long since done away with the latter notion, and best remember it in regard to the Broomhandle Mauser. But in that long-gone era, the Mannlicher, the Bergmann Model 1894, the Bergmann-Bayards of 1903, 1910, and 10/22, and a Pieper-Bergmann among others all stuck the magazine up in front of the trigger guard. Advocates of this arrangement felt that the handle should be designed for the hand, and putting the magazine inside it made it too gross to grip. Niotan wrote, „If the pistol fires a rather long cartridge, the magazine must of necessity be situated under the chamber of the barrel despite the rather ungracious form this gives the pistol, otherwise the grip becomes too voluminous.“

Leleu had responded very judiciously to this objection-some seven years earlier. „The handle of the pistol is of extreme importance in relation to that 'living portion' which gives the arm its 'feel,' and it seems wiser to use it for a cartridge reservoir than to add yet another cumbersome protuberance for the purpose.... The fact that one can place inside the grip of the Mannlicher M1894 a magazine containing cartridges 36.5mm long (1.43 inches) seems to indicate that at least in the case of pistols intended to be fired without a stock, the location of the cartridge magazine in the grip is both possible and desirable.“

The past sixty years have proved Leleu right, for even the longest cartridges work out well in a handle-housed magazine. Note the cartridge length for the 1930 Tokarev (35mm-1.38 inches), or even the .30 Kimball (43mm-1.7 inches).

Colonel Leleu said, „... in those pistols intended to be fired without a stock.“ What stock? This is another of those accouterments that, at first glance, would seem to have fallen by the way. Prior to 1914 a number of pistols came equipped with detachable shoulder stocks, which usually served as a holster as well, and were intended to let the pistol double as a carbine. Such pistols as the Mauser Model 1896, the P.08 Luger, and the 1903 Browning came so equipped in answer to the desiderata of general staffs for a sidearm for machine gunners, cavalrymen, artillerymen, train guards, and the like, which would offer rapid-fire capability for close-up defense, and replace the carbine for mid-range precision work.



Shoulder stock cum holster was standard equipment on the broomhandle Mauser, but a rare attachment for the 1911 Steyr. Note the very rigid socket mounting on the Austrian stock. From the Manufrance Collection.



The 1903 Browning in 9mm Browning Long was long standard with the Belgian Army, and was one of the finest of the early blowback automatics. The stocked model is extremely rare.



The stock did double duty as a holster, which was an awkward way to carry a pistol, but convenient compared to a carbine.



Opening the hinged butt reveals the 1903 pistol, the long magazine which the stock required, and a cleaning rod. From the Beretta Collection.

Perhaps it was military observers of the War Between the States who brought home the notion of screwing a rifle stock onto the handgun, for the clamp-on attachment was quite the vogue in the United States of the 1850s and 1860s, and many were to be found with a canteen or a coffee grinder built in.

After 1918 the notion of a pistol transformable into a carbine fell into general military disrepute, its tactical place being taken by the newly developed submachine gun. The Belgian and Canadian Brownings were the only pistols of the interwar period that seem to have achieved much distribution in a stocked variation. Recently, however, and despite the development of markedly less cumbersome submachine guns than the first-generation choppers of the Great War, stocked pistols seem to be coming back into vogue. The Russian Stechkin is normally issued with a shoulder stock-cum-holster, the Heckler & Koch P9S offers one as optional, and the United States Ingram and Czech Skorpion both neatly straddle the semantic line that separates pistol from submachine gun.

SAFETIES

Any firearm, and automatic pistols especially, must have safety devices built into them or onto them, but most shooters are dreadfully ignorant of what these are, what they do, and how they work. They are not alone in their confusion, for a military author recently wrote that a certain pistol had no less than five safeties. He was speaking of the former French Service Pistol PA35, and the devices he had in mind are these:

- 1-thumb lever on the slide which in its upper position blocks the hammer fall, but when turned down permits the hammer to strike the firing pin
- 2-safety notch on the hammer which catches on the sear if the hammer accidentally slips from under the thumb while cocking
- 3-magazine disconnecter which disengages the connection between trigger and sear when the magazine is out. This helps prevent the discharge of the tragic and classic „forgotten round in the chamber“
- 4-loaded chamber indicator; a pin or part protrudes from the slide when there is a round in the chamber
- 5-the firing pin does not protrude permanently from the breech face

Many commentators would insist on noting:

- 6-disconnector-an internal component that requires releasing the trigger and squeezing again for each shot, and prevents the hammer from falling unless the slide is fully forward into lock-up position.



A Soviet noncom takes aim with his stocked Stechkin of latest issue. The notion is in vogue again. Note the cross-shoulder carrying strap.



The Czech Skorpion .32 uses a folding-wire stock, but the basic idea is a century old.



How many safeties has the PA35? The manual, which keeps the hammer from striking the firing pin, is under the shooter's thumb, but some would insist there are five or six more hidden about.

Study a few more weapons and the list could get much longer, but to lump even this many together and indiscriminately label them as „safeties“ is certainly poor policy and indicative of foggy intellect. For there is a glaring difference between manual safeties and automatic safeties; between something like a thumb lever which the shooter can control (it has two positions: one is

„fire“ and the other is „safe“) and a magazine disconnecter which is just there, and might as well have a mind of its own.

Let us go down this list of six devices on the PA35 and see how they should be classified. Actually, only the first, the thumb lever, is under the command of the firer. It is a true manual safety. The second and third are automatic safeties, not under the command of the firer. The fourth is no sort of safety at all. It merely warns you that a round is in the chamber so you know that the weapon is either dangerous or ready; depending on your frame of mind. Only fools, though, give an indicator pin this much credit, for they can break and fail to register on the one hand, or bind out and always register „loaded“ on the other. The careful shooter will disregard the pin and jack the slide partway open to look for himself.

As for the fifth, it is certainly ludicrous to label this a „safety,“ for if the firing pin did indeed protrude permanently from the breechface, the gun would fire every time the slide went forward, whether or not the trigger was depressed. The pistol then would no longer be a pistol, but a submachine gun with an uncontrollably high cyclic rate of fire. And the sixth, despite reams to the contrary, is no kind of safety either, but likewise an elementary mechanical necessity.

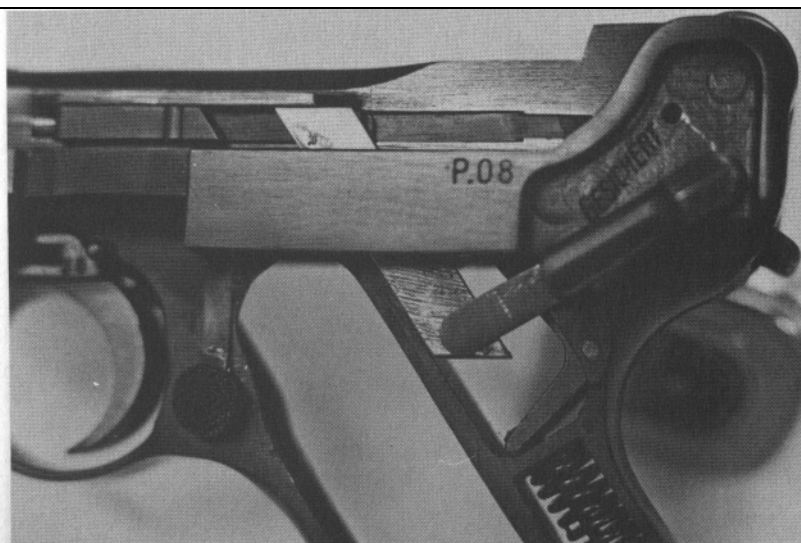
The difference between manual safeties, automatic safeties, and peripheral gadgetry either necessary or otherwise, should now be clear.

Some students regard an inertial firing pin as a type of safety. An inertial pin is shorter than the tunnel in the slide that houses it. It is rather heavy, and when struck by the hammer has enough inertia to fly forward against the resistance of the firing pin spring and indent the primer, firing the cartridge. The firing pin is then pulled back into its recess by its spring, and since it is shorter than the recess, the hammer may be carried fully down with a round in the chamber without the nose of the firing pin pressing against the primer. Thus the notion that this too constitutes a type of automatic safety.

Manual safeties are of several types, and may be found mounted on the frame (blocking the sear as on the Luger and the Colt 1911, the hammer as on the Steyr-Hahn and the Beretta Model 90, the trigger bar as on the SIG P210, or the trigger as on the Beretta Model 1934), or on the slide, blocking the firing pin as on the P-38, and sometimes also rolling a steel cylinder into place between the firingpin head and the face of the hammer, as on the PA35, the Walther PP, PPK, and TPH, and the S & W Model 39.

Manual safeties are generally on the left side of the gun, and should have two virtues. They must be operable (1) with the thumb, and (2) without too much fumbling. It does not always work out this way, and a fumblesome safety is an abomination on a combat handgun.

Though many combat practitioners prefer to replace the thumb lever on the 1911 pistol with a custom shelf over twice as large, the issue safety, ex-factory, on the old Government Model is one of the best ever built from a practical viewpoint. Those on the new line of post-1969 Berettas are quite similar, and much to be recommended. Curiously, Browning, when designing the P-35 High Power, gave it a reprehensible safety, much too adept at being missed by the thumb.



The thumb safety on the P.08 Luger blocks the frame-mounted sear from swinging sideways to release the striker. The inscription „Gesichert“ means „made safe.“

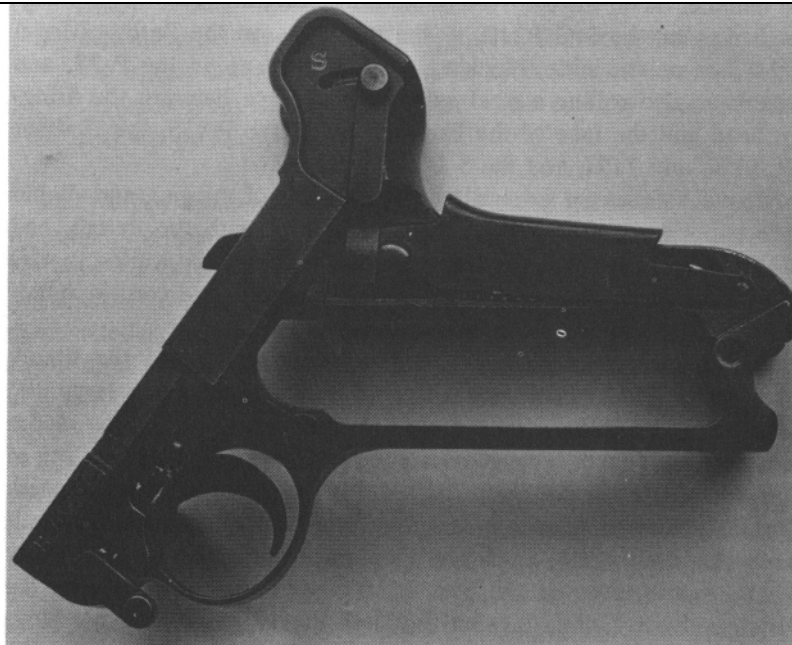
The thumb lever on the SIG P210 came very close to being the best ever built. Unlike that on the High Power, it offers a capacious horizontal surface, and operates on a decently long arc. Unfortunately, it is set just far enough forward to be out of reach, and is impossibly stiff unless smoothed up by a gunsmith. That on the Luger, while mechanically efficient, is hopelessly awkward. Myriad types of freak safeties are found on automatic pistols, and these are uniformly reprehensible. They are too many to catalog, but we might say in general that any safety on a single-action pistol that does not lie handily under the thumb and disengage by pushing downward, and any safety that has to be pushed through more than a 45° arc to disengage (the Beretta Model 1934 safety operates on a 180° arc) had best be ignored; thumb-cocking or operating the slide to load the chamber will prove to be handier.

The 1911 Colt has another type of manual safety besides the thumb lever: a „grip safety“ (the French quite appropriately call it a „pedal safety“) which can be an excellent notion. On the 1911 it appears as part of the backstrap, hinged at the top just below the hammer so that when the firer grips the gun, the safety pivots several degrees, removing a block from the path of the trigger bar. The Browning 1910 works contrarywise - the grip safety pivots from beneath; so does that on the Luger Models 1900-06 and Swiss M1929, freeing the sear to pivot laterally.

On the Schwarzlose blowforward and the Nambu Model 1914, the grip safety appears as part of the frontstrap, and falls beneath the fingers rather than under the heel of the hand.

Wherever it is located, the grip safety is forced out under spring tension and blocks the firing mechanism until it is forcibly depressed. If the safety is properly designed, that is to say, if it is indeed depressed when a firing grip is taken and if it blocks either the hammer or the sear, accidental discharges if the pistol is inadvertently dropped are rendered all but impossible. If the device is improperly designed it would better be done without. Most habitual users of the 1911 .45 take a grip with the thumb in an unusually high position, resting atop the thumb safety. With such a hold, the grip safety, unless the shooter has uncommonly fleshy hands, is often not depressed even though the gun is gripped in a perfectly pragmatic and acceptable fashion. And since it blocks the trigger bar and not the sear, its utility in preventing discharge if a cocked gun is dropped is questionable. Thus many .45 users either weld or tape the 1911's grip safety out of operation, and feel it no loss at all. Browning must have concurred, since he did not include one on the P-35.

With a manual thumb safety, and external hammer, and perhaps a properly designed grip safety, the automatic pistol is about as safe to handle as engineers can make it. From there on it is up to the shooter.



Grip safeties on Lugers accomplish the same function as the manual safety on the P.08, while the manual safety on such models is reduced to blocking the grip safety out.



The grip safety on the 1911 .45 merely blocks the trigger bar from reaching the dis connector and sear. It will not necessarily keep the hammer from bouncing off the sear if the gun is dropped, but the thumb safety will, if properly adjusted.

[5]

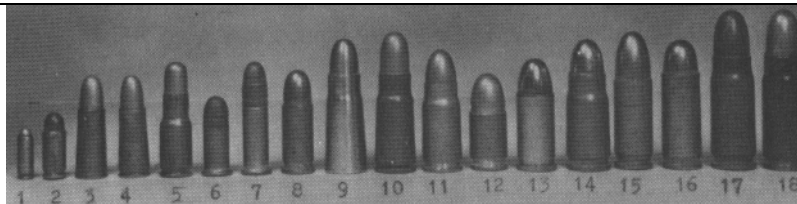
CARTRIDGES

SOME 250 OR 300 various handgun cartridges have been developed and manufactured over the past century, and one would expect a logical, coherent system for naming them. There have in fact been several systems, but these have largely faded in favor of ballyhoo and razzle-dazzle, with the result that the pitiable amateur has no choice but to memorize every last cartridge and its corresponding designation, one by one. There is no other way.

Take these for instance: .32-20, .38-.44, .380/200, .38/.45. The first is a .32 caliber projectile loaded ahead of 20 grains of black powder or an arbitrary charge of smokeless powder to achieve equivalent ballistics. The second is an overpowered .38 Special intended to be fired only in revolvers built on the larger .44 frame. The third is a .38 or .380 caliber cartridge with a 200-grain projectile. This is a British service round, and nothing in the name tells you it is identical to our .38 S & W Super Police. Finally, the .38/.45 is a .45 ACP case necked down for a .357 inch projectile, which except in the case of the .357 Magnum, are always called .38s for a rather obscure reason.

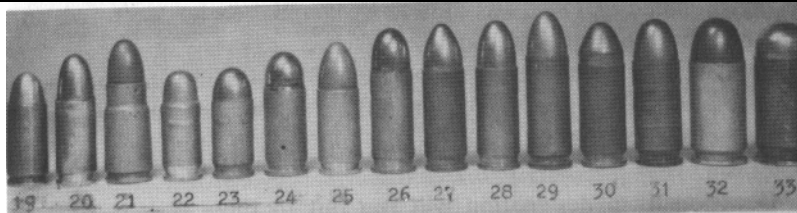
In the above examples, we have taken scrupulous care to insert the decimal point before all units indicating diameter. Modern practice, however, tends to drop them. Thus .32-20 is written 32-20, and .38.44 comes out 38-44. Consider the plight of the poor amateur endeavoring to differentiate between 38-40, 38-44, and 38/45. Actually there is no way, unless you know that the second set in each group refers to grains weight of powder charge in the first instance, the frame size of the gun in the second, and an antecedent cartridge case in the third.

The very fact that numbers are involved lends the whole affair an air of precision. Nothing could be further from the truth. The first figure always (I think) indicates the diameter of something. It may be the distance across the inside of the barrel from land to land (called bore diameter) or the distance from groove to groove, which is called groove diameter and adds about .01 inch to the first result. Or it may be the maximum outside diameter of the bullet, or the diameter of the bullet just ahead of the case mouth, or the outside diameter of the front end of the case itself. Sometimes it defies explanation altogether.



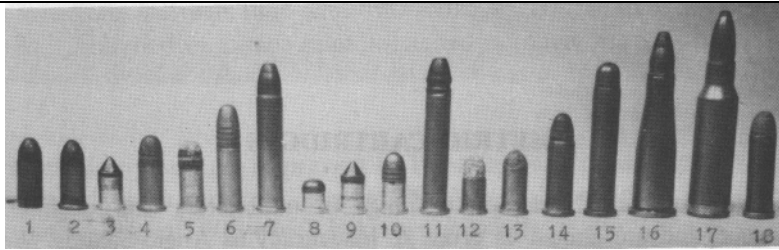
Cartridges for automatic pistols,

(1) 2.7 mm Kolibri; (2) 4.25mm Liliput; (3) 5mm Bergmann No. 2, M 94; (4) 5mm Bergmann No. 2, M 96; (5) 5mm Clement (or Charola-Anitua); (6) .22 Short; (7) .22 Long Rifle; (8) .25 ACP (6.35mm Browning); (9) 6.5mm Bergmann No. 3, M 94 (note lack of an extractor groove on this case, as on the 5mm Bergmann No. 2, M 94. The groove was added on the M 96 issue of each cartridge); (10) 6.5mm Bergmann No. 3, M 96; (11) 7mm Nambu; (12) 7.65mm Frommer; (13) .32 ACP (7.65 Browning); (14) .30 Luger (7.65mm Parabellum); (15) 7.65mm Long MAS (French service round for M1935); (16) 7.65mm Mannlicher M1901; (17) 7.62mm Tokarev (Russian service round); (18) 7.63mm Mauser.



Cartridges for automatic pistols,

(19) 8mm Bergmann Simplex; (20) 8mm Roth-Steyr M1907; (21) 8mm Nambu; (22) .35 Smith & Wesson; (23) .380 ACP (9mm Browning Short); (24) 9mm Browning Long; (25) 9mm Parabellum (or Luger); (26) .38 ACP or Super Auto (dimensions are the same but headstamps and powder charges differ; don't shoot Supers in .38 ACP guns); (27) 9mm Steyr; (28) 9mm Bergmann (or 9mm Bayard Long); (29) 9mm Mouser; (30) 9.65mm Browning; (31) 9.8mm Colt; (32) .45 ACP (U.S. service round); (33) .455 Webley Self-loading.



Cartridges for revolvers and nonautomatic pistols, (1) 5mm pinfire; (2) 5mm centerfire; (3) .22 Bosquette; (4) .22 Short; (5) .22 Short centerfire; (6) .22 Long Rifle; (7) .22 Magnum; (8) 6mm Flobert; (9) 6mm Bosquette; (10) 6mm Nationale; (11) 6mm Extra Long; (12) 6mm Bran-Latrigue; (13) 6mm „Merveilleux“ and „Protector“; (14) 6mm Velo-Dog Short; (15) 6mm Velo-Dog; (16) .22 Remington Jet; (17) .221 Remington Fireball; (18) .230 Long centerfire.

Generally the first figure in a cartridge designation is held to represent maximum bullet diameter. If we figure this way, the .38 is a .357, the .380 Auto is a .36, the .44-40 is a .427, the .44 Spl. is a .43, the .41 Long Colt is a .39, and the 38-40 is a .40 caliber despite the fact that the 40 in the name indicates a charge of 40 grains of black powder, while the .38 is supposed to have to do with the bullet.

The Europeans are only slightly more precise. The 7.65mm Parabellum uses a bullet that measures .309 inch across. The 7.63mm Mauser and the 7.62mm Tokarev use the same .309-inch slug; indeed, these last two cartridges are practically identical in every respect.

The second set of figures, if the designation has such, can refer to practically anything: powder charge, bullet weight, an antecedent cartridge, the frame size of the weapon it is intended for, or even the year of adoption. The 8-92 (sometimes rendered 8/92) is an example, and indicates the 8mm French service round adopted in 1892. Actually it was adopted in 1886, which explains why the experimental Clair automatic of 1887 was able to be chambered for it. It does not explain why the Clair was called a 7.7mm.

In some rifle cartridges, such as the .250-3000, the second figure refers to advertised muzzle velocity in feet per second, and it is only a matter of time before some PR dip christens a handgun round in this fashion.

Occasionally a designation will run out to three places, such as .45-40-250. These decipher almost invariably as: caliber-powder charge in grains weight of black powder-bullet weight in grains.

Caliber is ordinarily rendered in hundredths of an inch (.38 for instance) in the United States; the British have traditionally expressed it in thousandths, thus the .38 became .380 on that side, and neither expression fully hides the fact that the thing is really an emaciated .36.

The fad of late in the United States is to dub new calibers in the British fashion, not because the third decimal place adds a scintilla of precision, but merely because the three-digit figure sounds exotic to American ears, hence is easier for sales sharks to ballyhoo.

METRIC CARTRIDGES

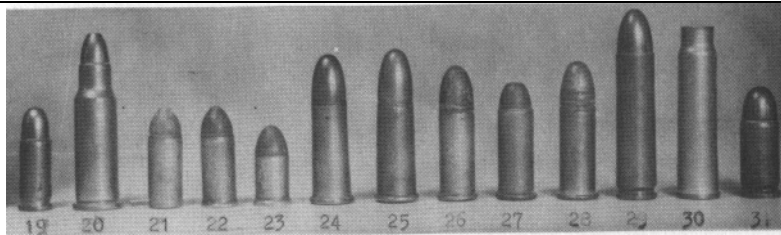
The Continentals designate things in millimeters and decimals thereof, and are almost as prone to inaccuracy as Anglo-Saxons. We have cataloged a few of their bloopers above, but are hardly running short on examples.

The 7.62 Tokarev, for instance, is the 7.63 Mauser with an increased powder charge. Or did we already say that?

The 7.65mm Mannlicher of 1896 was redubbed 7.63 in 1903,

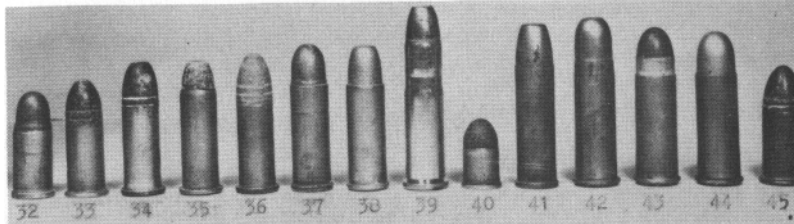
which does not seem to prevent its being known as the 7.7mm Mannlicher in some quarters. The inimitable von Mannlicher introduced another one in 1900 which is known variously as the 7.63mm or the 7.8mm.

Perhaps the most broadly defined cartridge in the book is the 7.62mm Russian Nagant, which is known as the 7.5mm Nagant on the one hand and the 8mm Nagant on the other. All three are one and the same.



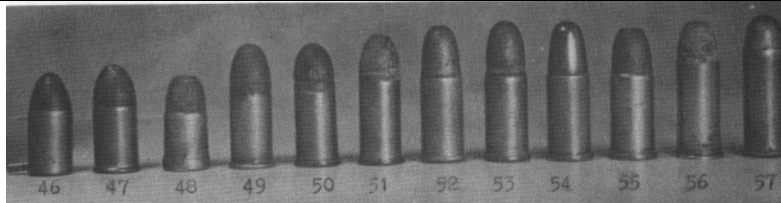
Cartridges for revolvers and nonautomatic pistols cont.

(19) .25 ACP (6.35mm Browning-some revolvers were made for it); (20) .256 Winchester Magnum; (21) 7mm pinfire; (22) 7mm centerfire; (23) 7mm centerfire, thick rim; (24) 7.5mm Swedish (Nagant M.87); (25) 7.5mm Swiss (Schmidt-Rubin M.82); (26) 7.6mm Mouser; (27) .300 Revolver; (28) .32 rimfire (Smith & Wesson No. 2); (29) .30 Magnum (.30 M1 carbine); (30) 7.62mm Nagant; (31) 7.65 Browning.



Cartridges for revolvers and nonautomatic pistols, cont.

(32) .32 Smith & Wesson; (33) .320; (34) .320 Long; (35) .32 Long Colt (inside lubricated); (36) .32 long Colt (outside lubricated); (37) .32 Smith & Wesson Long; (38) .32 Colt New Police; (39) .32-20 (.32 WCF-or Winchester Center Fire); (40) 8mm „le Gaulois“; (41) 8mm Gasser M 98; (42) 8 mm French Service Mle 1892; (43) 8mm French 92 nonofficial; (44) 8mm „Tue-Tue“; (45) .340.



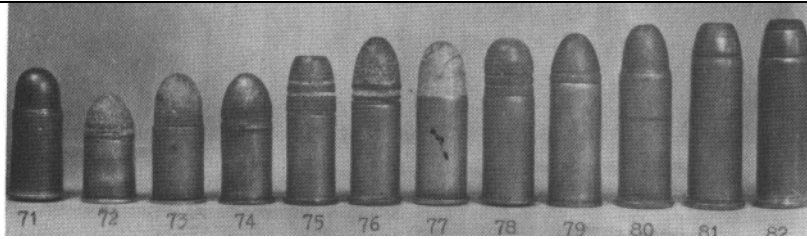
Cartridges for revolvers and nonautomatic pistols cont.

(46) 9mm pinfire; (47) 9mm centerfire; (48) 9mm Perrin; (49) .380; (50) 9mm Danish M 86; (51) .38 Short Colt; (52) .38 Smith & Wesson; (53) .38 Merwin & Hulbert; (54) .380 Mk II; (55) .38 Colt New Police; (56) 9mm Japanese Type 26 (1893); (57) .380 Long.



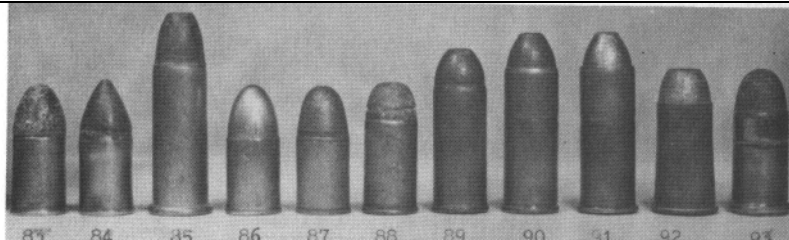
Cartridges for revolvers and nonautomatic pistols, cont.

(58) .360 Eley; (59) 9mm Gasser M78; (60) .38 Long Colt; (61) .38 Special; (62) .357 Magnum; (63) .38-40; (64) 9.4mm Dutch M73; (65) .41 rimfire; (66) .410 Short; (67) .47 Short Colt (short case); (68) .410 Eley (long case); (69) .41 Long Colt; (70) .41 Magnum (nonstandard bullet).



Cartridges for revolvers and nonautomatic pistols, cont.

(71) 10.35mm Glisenti M74; (72) .44 Bulldog; (73) .44 Eley; (74) .442 Tranter; (75) .44 Nagant Brazilian; (76) .44 Smith & Wesson American; (77) .44 Smith & Wesson Russian; (78) 10.6 German M79; (79) .44 Colt; (80) .44 Special; (81) .44-40 (.44 WCF); (82) .44 Magnum.



Cartridges for revolvers and nonautomatic pistols, cont.

(83) 11mm French Service Mle 73; (84) 11mm Mle 73/90; (85) 11.3mm Gasser M70; (86) .450 jacketed; (87) .450; (88) .45 Webley; (89) .45 Smith & Wesson Schofield; (90) .45 Colt (called Long Colt); (91) .45 Colt M1909; (92) .45 M.P.; (93) .45 Auto Rim.

Ordinarily Europeans refer to a cartridge by its caliber, then tie it off with reference to its origins-Nagant and von Mannlicher above designed the guns that used them, and probably the cartridges as well. The 9mm Kurz, Corto, or Court (all meaning „short“ in various languages) is so designated to differentiate it from more powerful rounds such as the Parabellum, Bayard, and Mauser 9mms. The designer's name, Browning, had already been applied to a previous and more powerful 9mm round.

When they want to be really specific, however, the Europeans will run the designation out to cover two dimensions: the diameter of the bullet and the length of the cartridge case from base to mouth. Thus the popular 9mm Luger (or Parabellum, as it is known in Europe) becomes the 9mm x 19mm. Sometimes in this process a more exact figure than nominal caliber is employed. The 9mm Mauser is often referred to as the 9.08 x 25 in punctilious or pedantic circles. If the cartridge in question is rimmed, a capital R is added, thus the 8-92 becomes the 8.3 x 27.5 R.

ANGLO-METRIC CONVERSION

When we begin translating from metric to Anglo-Saxon and viceversa, things become even more demoralizing.

Take the .38s for example: .38-inch is 9.652mm. However, the Europeans refer to .38s as 9mms pure and simple, which is in fact a lot closer to true caliber than is the Anglo-Saxon designation. Fair enough. But the 9mm Lefauchaux is considerably larger than anybody else's 9mm, and it is always with some stupefaction that we watch a 9mm Parabellum bullet, say, slide effortlessly down the Lefauchaux barrel hardly rubbing shoulders with the bore.

Consider the .30 caliber range: .30 inch is 7.62mm on the nose: .32 inch is 8.128mm. Anglo-Saxons call the 7.65mm Parabellum the .30 Luger, while Europeans call the .32 Auto the 7.65 Browning. Somebody has to be in error.

An exact conversion follows:

| | |
|--------------------|---------------------|
| 6.35mm = .25 inch | .32 inch = 8.128mm |
| 7.62mm = .30 inch | .38 inch = 9.652mm |
| 11.43mm = .45 inch | .357 inch = 9.06mm |
| 12.7mm = .50 inch | .44 inch = 11.176mm |
| .455 inch = | 11.557mm |

Generally things sort out roughly thus:

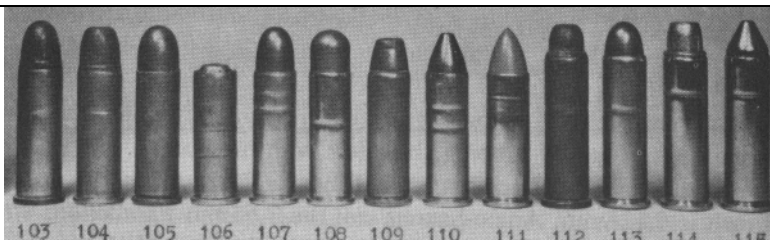
| | | |
|-------------|----------------------------|-----------------------|
| 5.5mm | .22 caliber | |
| 6.35mm | .25 | |
| 7.62-7.65mm | .30 or .32 9mm | .38, .380, .357, .360 |
| 10.4-12mm | .44, .45, .450, .455, .476 | |

As a handy rule of thumb, multiply millimeters by 4 to get hundredths of an inch, and divide hundredths of an inch by 4 to get the metric equivalent. Thus 9mm becomes .36 inch, which is close enough to .357 to be useful, and .44 becomes 11mm which is just about where it is at.



Cartridges for revolvers and nonautomatic pistols, cont.

(94) 12mm pinfire; (95) 12mm centerfire; (96) 12mm Perrin; (97) 12mm Goland; (98) .455 Enfield Mk II; (99) .455 Webley Mk VI; (100) .476 Enfield Mk III; (101) .500 Revolver; (102) 15mm pinfire.



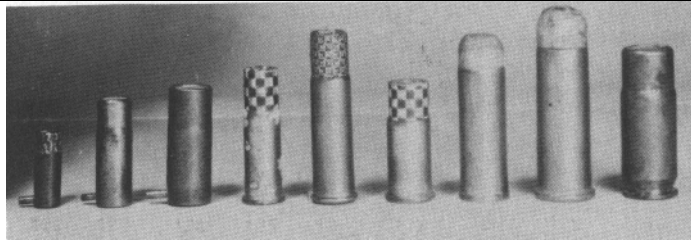
Various loadings of .38 Special and .357 Magnum Chapter V, plate 11

(103) .38 S & W Spl. (Rem-UMC) round nose, lead; (104) .38 Colt Spl. (WRA Co) flat nose, lead; (105) .38 Spl. (Rem-UMC) full jacketed; (106) .38 Spl. Wadcutter (R-P) lead; (107) .38 Spl. metal piercing (R-P) jacketed nose, lead bearing surface; (108) .38 Spl. Super Police (WRA) blunt nose, lead; (109) .38 Spl. (Super-Vel) jacketed soft-nose, hollow point; (110) .38 Spl. Metal Penetrating (Super-X); (111) .38 Spl. Metal Piercing (Western) tungsten core, Teflon jacket; (112) .357 Magnum (Rem-UMC) lead; (113) .357 Magnum (R-P) jacketed nose, lead bearing surface; (114) .357 Magnum (Super-X) semi-wadcutter; (115) .357 Magnum Metal Piercing (Super-X).



The .455 Webley Family

(116) .455 Webley Mk I (black powder); (117) .455 Webley Mk II (cordite); (118) .455 Webley Mk III „Manstopper,“ cup point; (119) .455 Webley Mk IV „Manstopper,“ flat point; (120) .455 Webley Mk V „Manstopper“ (identical to Mk IV except that bullet alloy is hardened with antimony); (121) .455 Webley Mk VI (identical to Mk II, but with jacketed bullet, charged with cordite or with nitrocellulose powder).



Selection of Pistol or Revolver Shot Cartridges (122) 5mm pinfire; (123) 7mm pinfire; (124) 9mm pinfire; (125) .320; (126) 8mm Mle 92; (127) .380; (128) .41 Long Colt; (129) .44-40; (130) .45 ACP.

THE EARLY DAYS

Handgun cartridges run the gamut from 2.7mm (.106 inch) to about 15mm (.59 caliber). Some are quite long, others remarkably short in proportion to their projectile diameter. Generally American revolver cartridges are longer or more capacious than need be, since most of them were originally designed for black powder and had to accommodate a large cargo of fuel in order to develop acceptable muzzle velocities. When loaded with denser smokeless powders, as they usually are today, much of the interior of the case is empty.

Automatic pistols, on the other hand, had to await the development of nonfouling smokeless powders in order to function properly, and their cartridges are generally very small, compact, and ballistically efficient.

European revolver cartridges are usually much shorter than American cartridges of equivalent caliber, for although both were originally loaded with black powder, the European guns were grossly underpowered by American standards.

Not a great deal could be done to alter the ballistic properties of black powder-granule size was the only manipulable variable. With smokeless, however, virtually any pressure curve the designer desired could be had, thus making possible vastly higher velocities than black powder could deliver.

Hardly surprising then that the early autopistol designers were velocity-happy. The trend was to very small, light projectiles loaded ahead of a generous dosage of the hot new powders. When battlefield experience showed that the new cartridges, despite their exaggerated velocities, gave a poor performance as man-stoppers, there was an instant flesh-up of calibers all over.

John Browning, in 1905, stretched his 1903 .38 blueprints in all directions to come up with a .45. Luger, in Germany, blew his bottlenecked 7.65mm out to a straight-walled profile, thus giving birth in 1902 to the 9mm Parabellum. Mauser used the same process, going from a bottlenecked 7.63 to a straight-walled 9.

The new line largely displaced their small-bore, high-velocity predecessors during the first decade of the new century, the prominent exceptions being Switzerland, where the 7.65mm Parabellum remained the standard service round until 1948, when the 9mm replaced it, and the Soviet Union, which appropriated the 7.63 mm Mauser in 1930 for use in their Tokarev pistol, rebaptizing the cartridge the 7.62mm Tokarev.

The 9mm Parabellum, the .45 ACP, and the 7.62mm Tokarev are also widely used in submachine guns.

THE HANDGUN SHOULDER GUN CARTRIDGE COMBO

This notion of cartridge interchangeability between handgun and shoulder gun is hardly new, as we have seen, dating back to the days of flintlock horse pistols, when half the powder charge from the paper musket cartridge was sometimes bled for use in the pistol, which in any event used the same ball as the musket. The introduction of metallic cartridges quashed this vogue to some extent, since the inevitable result was either overpowered pistols or underpowered shoulder arms. Nevertheless, there are some nice compromises.

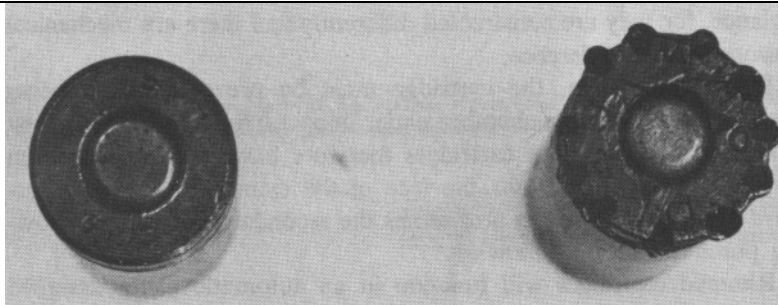
The .44-40, a popular round for the single-action Colt revolver, was actually introduced by Winchester for their Model 1873 leveraction saddle carbine, as were the .32-20 and .38-40. Colt picked the cartridge up only when they recognized the commercial possibility of selling belt guns to all those Winchester fans. These three, the .32-20, .38-40, and .44-40, were the popular duos on the Western frontier, with Colt, Remington, and Merwin & Hulbert supplying the handguns while Winchester, Remington, and Colt made the rifles.

When Smith & Wesson introduced the .44 Magnum in 1955, Ruger and Marlin were not far behind in offering carbines for it. This development stimulated a bit of hindsight, and as long as the supply of 1892 Winchester carbines held out, there was a brisk business converting these

handy little rifles to .357 Magnum. Chaps who frequent such remote bailiwicks as the Amazon basin find that the interchangeable ammo handgun-rifle combination has a lot to recommend it when the game hunted is relatively lightweight, and there may be an awful lot of jungle between you and the next clump of civilization.



These primer-powered, reuseable practice cartridges have both the projectile and the case made of plastic, and were developed by Speer, Inc., on USAF contract.



An imaginative member of the French Underground peened out the rim of the 9mm cartridge at right so he could fire it in his .38 revolver, and thereby perhaps acquire a proper 9mm pistol. On left is a standard „preconversion“ 9mm casehead.

The Spanish Guardia Civil used to issue bolt-action carbines chambered for their standard 9mm Largo pistol round. And semiauto „police carbine“ versions of 9mm Parabellum SMGs are sometimes seen. The British Patchett-Sterling is so offered.

There used to be a French carbine made for the 8-92 revolver cartridge. And perhaps the most useless shoulder gun ever produced was a revolving rifle chambered for the 12mm pinfire handgun cartridge.

Since World War II, there have been several dismal efforts to build a handgun around the .30 M1 carbine round. These were foredoomed to failure, since they were founded on the specious premise that the result would find favor with the military.

This was the furthest assumption from Bill Ruger's mind when he recently brought out his Blackhawk single-action revolver in .30 carbine calibration. He visualized a gap in the picket fence of Magnum handgun sporting cartridges between the .256 Winchester and the .357 Remington, and thought the .30 would fill it handily. He could be right. And then there are all those folks with .30 caliber carbines who might want a handgun to go with it. That sounds familiar, and it has worked before.

Submachine guns were developed during World War I, and were chambered for the service handgun round of the various belligerents simply because the cartridges were on hand in quantity. Today the situation is reversed: the SMG takes precedence militarily, and most armies chamber the handgun for whatever round the SMG burns. Thus the English, in the late 1950s,

abandoned the revolver in favor of the autopistol primarily in order to simplify supply by standardizing ammo with the submachine gun.

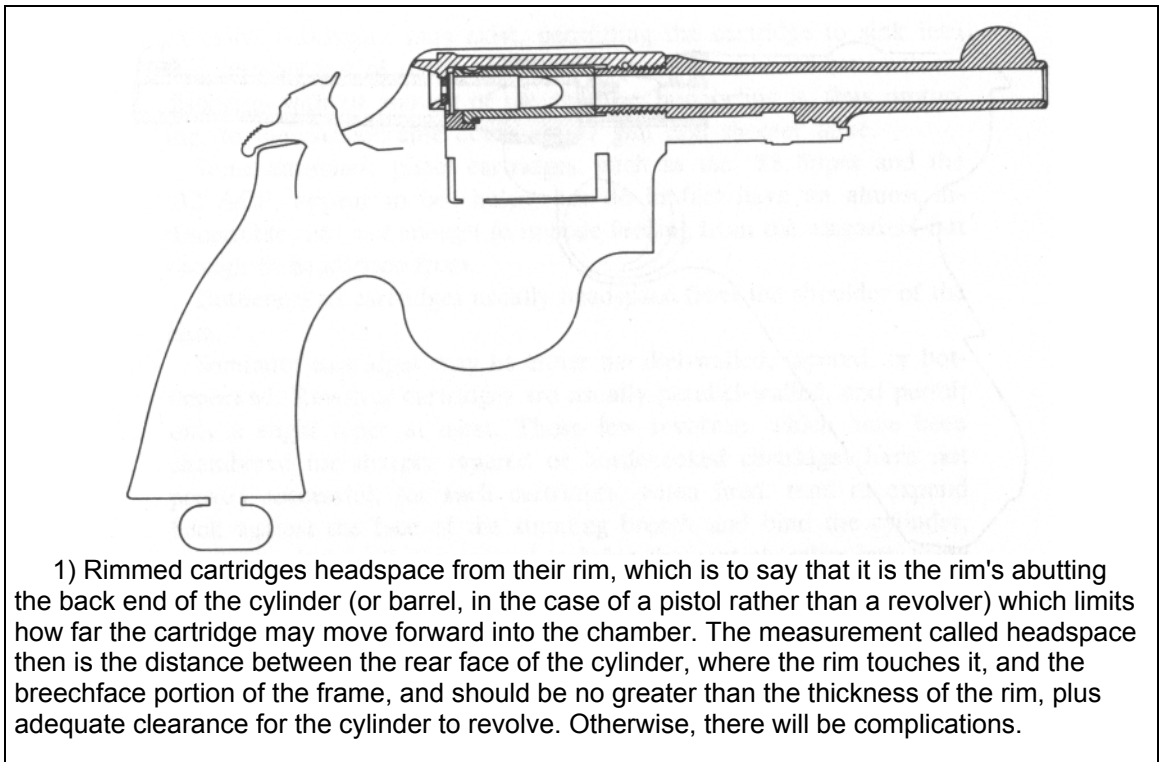
CARTRIDGES FROM THE OUTSIDE IN

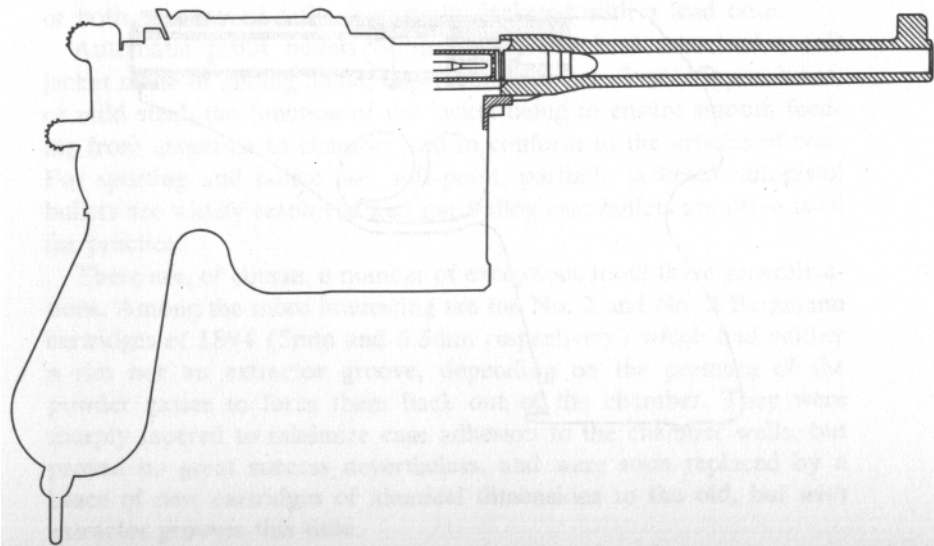
Revolver and semiauto pistol ammunition can be distinguished at a glance, for they are constructed differently and there are mechanical reasons for this difference.

In either weapon, the cartridge must be prevented from being pushed deeper into the chamber under impact from the firing pin, lest misfires occur. Revolver cartridges therefore have a pronounced rim on their bases which abuts the face of the cylinder, preventing forward movement. The rim also serves the secondary purpose of allowing purchase for the extractor.

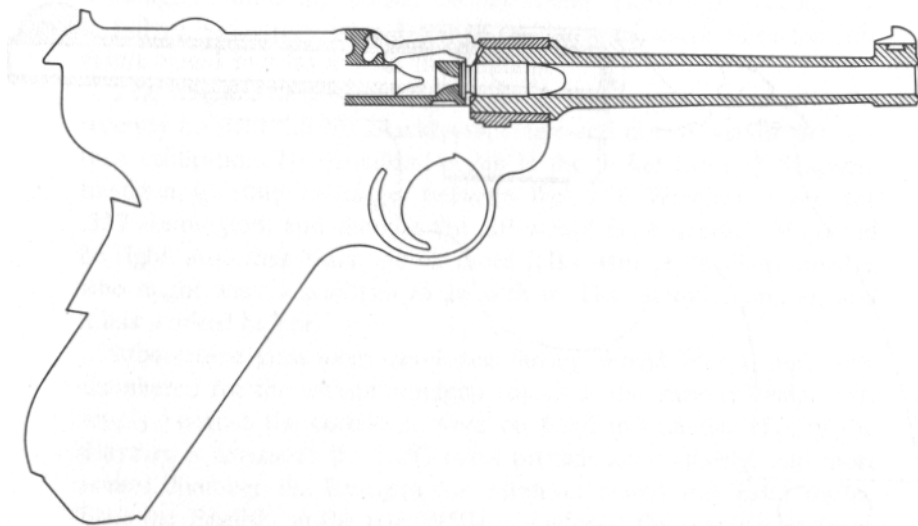
Rimmed cartridges will function in an automatic pistol designed for them, but not with remarkably good grace. Far simpler to do without the rim and let the mouth of the case abut a shoulder at the front of the chamber, thus positioning the cartridge in proper relation to the breechface and firing pin. Therefore most autopistol cartridges have no rims, the head diameter being the same as the body diameter of the case. A groove is cut around the periphery of the case just in front of the base to give the extractor a place to grab.

This abutting of some portion of the case against some portion of the gun is called „headspacing,“ and the distance between the cartridge-gun abutment and the breechface is the „headspace.“ If the cartridge case (for autopistols) is too short, or if the gun (either auto or revolver) is improperly manufactured or adjusted, a condition of excessive headspace may exist, permitting the cartridge to sink into the chamber out of reach of the firing pin, or worse, to set back on discharge without enough of the chamber supporting it, thus rupturing, to the considerable detriment of gun and shooter alike.

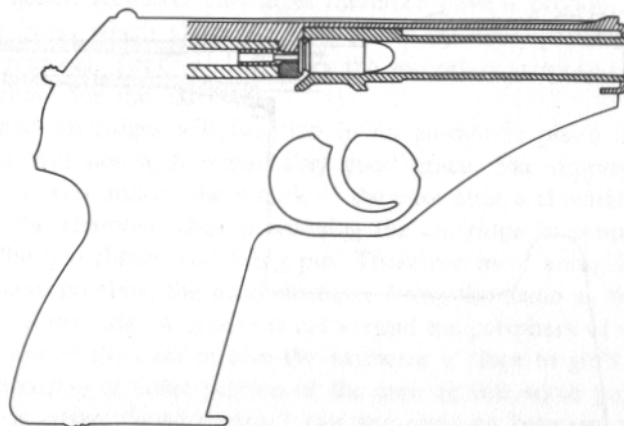




2) Bottlenecked cartridges, such as the 7.63mm Mouser and the .30 Luger are rimless (though they have an extractor groove) and headspace from the shoulder of the case.



3) Most semiauto pistols headspace off the mouth of the cartridge case, which abuts a shelf inside the chamber. These cartridges are called „rimless,“ since the „rim“ is the same diameter as the body of the case, and serves no purpose other than providing the extractor a place to grab. Headspace is measured from the shelf inside the chamber to the breechface portion of the slide or bolt in battery (closed) position.



4) Some autopistol cartridges such as the .32 ACP have a barely discernible rim, hardly enough to see, but enough to headspace from. They are called „semirimmed;“ and headspace is measured just as in a revolver.

Some automatic pistol cartridges, such as the .38 Super and the .32 ACP, appear to be rimless but do in fact have an almost indiscernible rim: not enough to impede feeding from the magazine, but enough to headspace from.

Bottlenecked cartridges usually headspace from the shoulder of the case.

Semiauto cartridges may be either parallel-walled, tapered, or bottlenecked. Revolver cartridges are usually parallel-walled, and permit only a slight taper at most. Those few revolvers which have been chambered for sharply tapered or bottlenecked cartridges have not proved successful, for such cartridges, when fired, tend to expand back against the face of the standing breech and bind the cylinder, preventing it from being rotated to bring the next chamber into firing position.

This discussion concerns centerfire cartridges. Rimfires of necessity have a rim, and headspace therefrom. Pinfires had no need of a rim, the headspace, such as it was, being accomplished by the pin.

Cartridge cases ordinarily are made of brass, sometimes nickel plated. In the old days they were often made of copper, and during wartime, when copper is in chronic short supply (cartridge brass is about 70 percent copper, 30 percent zinc) they are made of mild steel. Experimental, blank, dummy, and training cartridges sometimes have plastic or aluminum cases.

Revolver bullets may be pure lead, lead alloyed with tin or antimony or both, or may be fully or partially jacketed with a lead core.

Automatic pistol bullets ordinarily have a lead core and a full jacket made of gilding metal, cupronickel, nickel silver, copper, brass, or mild steel, the function of the jacket being to ensure smooth feeding from magazine to chamber and to conform to the articles of war. For sporting and police use, soft-point, partially jacketed autopistol bullets are widely employed and hard-alloy cast bullets are often used for practice.

There are, of course, a number of exceptions to all these generalizations. Among the more interesting are the No. 2 and No. 3 Bergmann cartridges of 1894 (5mm and 6.5mm respectively) which had neither a rim nor an extractor groove, depending on the pressure of the powder gasses to force them back out of the chamber. They were sharply tapered to minimize case adhesion to the chamber walls, but proved no great success nevertheless, and were soon replaced by a brace of new cartridges of identical dimensions to the old, but with extractor grooves this time.

The first Smith & Wesson, a lever-action repeating pistol introduced in 1854, used a cartridge that looked like nothing more than a lead bullet. The base was deeply hollowed to take the powder charge, and the primer, covered by a cork disk, came flush with the base of the bullet. The gun had no extractor or ejector, since there was nothing to be extracted or ejected.

Working on a vaguely similar principle, Walther in Germany, during World War II, developed a 9mm rocket projectile meant to be fired from a handgun. The ballistical difference between this and the old S & W is that the S & W projectile began losing velocity after it left the bore, all its pressure having been built up in the barrel, while the rocket projectile continues to gain velocity after leaving the gun. Further research on rocket handguns has been carried out by the Gyrojet Company in California.

Smith & Wesson has put considerable effort of late into the development of a 9mm caseless cartridge consisting of an electrically ignited, fully combustible propellant plug attached to the base of a more or less conventional jacketed bullet—a step ahead of their circa 1854 project. To date the new S & W round has been used only in submachine guns.

UNLIKELY BEDFELLOWS

Cartridges often wind up, either by design or by accident, in guns a prudent man would at first glance consider quite inappropriate. Sometimes they are. Other times it turns out a fine thing to do.

The .44 Russian and .44 Special can both be fired in the .44 Magnum, and indeed make very mild, pleasant practice loads in the big gun. Likewise the .38 Special can be and often is fired in the .357 Magnum. Reversing the process, however, is disastrous. The .357 case is identical to the .38 Special in all respects save length. It was designed about 1/10 inch longer than the Special to prevent its being used in .38 revolvers. Some old Colt .38s, however, had chambers bored straight through rather than shouldered ahead of the case mouth—.357s drop right in. I have seen modern .38 revolvers as well which were so sloppily chambered that .357s would fit. Firing these combinations is a good way to get shed of a few spare fingers. To repeat: Use .44 Specials in a .44 Magnum or .38 Specials in a .357 anytime. But never the other way round.

The .22 rimfire is a fine revolver cartridge, but by design it fails to lend itself to feeding through semiauto mechanisms. This notwithstanding, numerous semiautos are chambered for it and generally handle it with outstanding reliability—a case in point of what engineering can accomplish when the incentive is strong enough.

The .38 Special match round with the square-nosed wadcutter bullet which stops flush with the case mouth is another example. Never was a cartridge so perfidiously unsuited for use in an automatic. Yet Colt and Smith & Wesson both make excellent target autos for this superbly accurate round.

The reverse of this approach is to rig a revolver for semiauto cartridges, and the incentive was the Great War, which the United States entered inexcusably short of hardware. This was a handgunners' fracas, and there were not enough 1911s to go around. The War Department asked Smith & Wesson and Colt to adapt their large-frame revolvers for the .45 ACP cartridge, and a clever development by S & W made this possible. It consisted of a small, flat, half circle of blanked sheet metal which had, around its inside periphery, three indentations of slightly more than a half circle each, each of which snapped firmly into the extractor groove of a .45 ACP cartridge. Any number of these „half-moon clips“ as they were called, could be preloaded with three cartridges each, and so armed a soldier could reload his revolver almost as fast as he could an automatic. The clips, besides speeding up loading, performed the essential function of giving the ejector an engagement surface. Since, except for a few of the first Colts, the chambers were reamed to headspace on the mouth of the cartridge case, the revolver could be fired without the clips in an emergency, but the empties would then have to be pried out individually with a knife blade or whatever came to hand.

It was a fine system, and the Model 1917 revolvers of both firms gave excellent accounts of themselves.

Several years ago the Israelis built a scaled-down half-moon clip to go along with a small quantity of Smith & Wesson M & Ps which they chambered for the 9mm Parabellum cartridge. It was not at all a bad idea.

WHERE ANGELS FEAR TO TREAD

The preceding examples were generally thought out at the factory engineering level. The sort of switcheroo that comes off when a shooter decides to see if the ammo at hand will fit the gun at hand has a lot less to recommend it.

The .32 S & W revolver cartridge does not lend itself to magazine feeding, but will often fire in .32 autos if hand-fed. Criminals have been known to file the rims off .32 revolver ammo and cut an extractor groove, so that it would in fact function through the magazine. Such a rig-up figured prominently in the celebrated Petrou case of 1933 in London.

The other route—using .32 or 7.65 auto cartridges in a revolver is decidedly riskier, since the ammo will often be more strenuous than the gun was designed to handle.

The French underground in World War II used to peen the heads of captured 9mm Parabellum rounds out to make a rim of sorts so they could use it in .38 revolvers, but that is nothing you would care to do in peacetime.

Actually this sort of thing goes on fairly constantly in Europe, where handgun ammo is tightly controlled. And you frequently find folks pulling lamentable stunts like firing .32-20s in the 8mm Mle 1892 service revolver, or worse, .45 ACPs in the 11mm Mle 1873 analogous calibers but with a 100 percent discrepancy in chamber pressure the wrong way! Some shoot the 8-92 in .38 revolvers, and this is a spectacular event to watch from afar since the chamber is grossly oversize, and the case comes apart in shreds.

Virtually any cartridge can be fired in a larger caliber gun by wrapping the case with enough paper or tape to wedge it tightly in the chamber. This has been done on occasion when not to shoot at all seemed more perilous than giving it a prayerful try. And such lastresort situations are the only justification for any of this damfoolery.

In short: To each arm its proper ammunition. The longevity of the gun depends on it; Sometimes that of the shooter as well.

BALLISTICS

THE FIELD known as ballistics is a rarefied branch of science, and in order to discuss it competently one should have advanced degrees in several disciplines. The subject is sufficiently vast to be broken down into several distinct subparts. Interior ballistics concerns the actions within the gun from the moment the firing pin strikes the primer until the bullet leaves the muzzle. We touched very lightly on this in the first chapter.

Exterior ballistics concerns the flight of the bullet from muzzle to target. Galileo was the first serious student of exterior ballistics, and wrote in 1632 that his investigations in physical science had been stimulated by „accounts given by gunners.“ Gunners, or more properly artillerymen, have returned the compliment, and use Galileo's formulae, or elaborations on them, for sighting their weapons even to this day.

Full-bore rifle shooters tend to get heavily involved in exterior ballistics, and revel in such terms as „sectional density“ (the ratio of bullet weight to sectional area) and „ballistic coefficient“ (sectional density divided by a coefficient of bullet form or shape). If one puts all this specialized knowledge to good use, the rifle is a deadly tool at well over a quarter-mile range.

Pistol bullets, for various practical reasons such as weight and dimensions of the weapon and resultant recoil, invariably have wretched sectional density and a blasphemous ballistic coefficient. The inevitable result is that they lose velocity, and to a lesser extent accuracy, at what a rifleman would consider a rather short range.

But it does not matter much, because very few men indeed have the skill to wring usable accuracy from a handgun to the limit of the accurate range of the projectile. And at the range to which most men can place their shots accurately, the remaining velocity of the bullet is adequate for the job. As testimony to this, note the shocking aerodynamic qualities of our best hunting bullets for handguns-shaped like a garbage can-yet no one has proclaimed this as reprehensible design from the standpoint of exterior ballistics. The reason is that the finer points of exterior ballistics are of little practical interest to the handgunner. He is concerned with this subject to the extent of plotting his trajectory put to 100 or 150 yards so he will know where to set the sights and how far to hold over or under at other ranges. Likewise he is concerned with interior ballistics to the extent of understanding how his weapon functions. And this is about as far as it goes.

The branch of ballistics of most vital interest to the handgunner is that known as terminal ballistics, and it, unfortunately, is the least scientific and most resolutely subjective of the lot, possessing none of the mathematical purity of the preceding disciplines.

Terminal ballistics concerns the interaction between the bullet and the target, and by extension, the reaction of the target to the wound which the bullet produces.

An overall glance at modern pistol bullets demonstrates the fact that they were predominantly designed with terminal rather than exterior ballistics in mind. Target shooters use a bullet shaped like an oil drum, its square nose intended to cut a clean, round hole in a paper target, thus its name: wadcutter. Hunting and combat bullets are designed with soft or hollow noses to expand on impact, or with square noses of less than body diameter, backed up by sharp shoulders to chop a full-diameter wound channel. Bullets for semiauto pistols are designed perforce with nose shapes respondent to the task of getting them up the feed ramp and into the chamber. Military pistol bullets must likewise meet the requirements established by the Hague accords. Finally, the bulk of factory-loaded revolver cartridges, exemplified by the .38 S & W, .32 Long, and .38 Special, and other turn-of-the-century holdovers, have bullets whose design reflects not a scintilla of logic. These round-nosed projectiles were mostly just a mindless transition from round balls.

The interaction that occurs when a bullet penetrates a paper target is hardly of a magnitude or complexity to give rise to divergent opinion. Hence, when we speak of terminal ballistics we are thinking primarily of a flesh target, be it man or beast, and secondarily of bullet penetration in such mediums as wood, metal, and the like.

The bullet, as it approaches the target, possesses a number of qualities which will to some extent govern its effectiveness. Among these are its velocity, mass, cross-sectional area, nose shape, and surface material (lead, gilding metal, etc.). Factory ballistics charts, and many „authorities“ who derive their expertise therefrom, take only the mass and velocity into account, which they run through the formula

$$E = MV^2 / 2$$

to get the kinetic energy of the projectile in foot pounds.

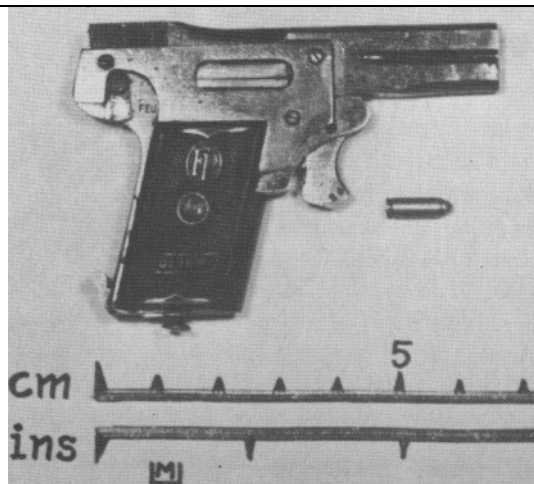
The energy formula yields a very exact and satisfying figure which unfortunately is virtually worthless for anything other than inclusion in another formula to determine recoil. Certainly it has nothing to do with the effectiveness of the bullet in the target.

Compare, to take a more than extreme example, a phonograph needle with a bowling ball. It is quite feasible to give the phonograph needle sufficient velocity to raise its kinetic energy to that of a wellthrown bowling ball. But just because their kinetic energy is identical hardly means they will have similar effects, either immediate or longterm, on an assailant. Suppose we were trying to stop a bayonet charge with these hypervelocity phonograph needles. They would certainly penetrate the human body completely, likely piercing through a vital organ and causing eventual death. Yet our attacker would be unlikely even to realize he was injured until some time later, and would have long since concluded his business with us. If the needle did not pass through a vital organ, the wound would be a slight one indeed, even though penetration was complete.

The bowling ball, on the other hand, would be highly unlikely to inflict more than a bruise, yet the attacker would probably be stopped in his tracks, and put out of action for a while thereafter. And this is the desired result. We gain the impression that there is a distinct virtue to slow, heavy projectiles.

But this, one might say, is an outrageous comparison. Perhaps not. The 2.7mm Kolibri, or even the 4.25mm Lilliput, is hardly more of a stopper, or a wounder, than the phonograph needle. Yet many of us can remember, thanks to the newsreels, seeing even the staunchest Gardes Mobiles stopped cold by a paving stone launched from a sure hand.

To cinch the examples a bit closer together, the ThompsonLa Garde Committee, of which more will be said, found that slaughter-house bullocks had to be shot eight, nine, or ten times with the .30 Luger before they even seemed to realize all was not well, whereas with the .45 Colt, the animal would begin to hemorrhage from the nose and mouth at the first and second shots, and would drop after the fourth or fifth. The .30 Luger has a muzzle energy of 425 foot pounds, whereas the .45 Colt rates only 288.



The 2.7mm Kolibri, manufactured by Grabner, an Austrian, just before World War I, carried a six-shot magazine and fired its .70 caliber bullets through a smooth bore (no one made rifling cutters that small). Though entirely capable of killing, its stopping power with a nonlethal hit was absolutely nil.

More interesting still is the fact that all the .30 Luger bullets were staying in the bullock's body. None exited, hence the bullets were expending all of their formidable energy within the target. This pretty well puts the lie to the notion that the bullet with the highest energy is the most effective if only it can be made to give up its energy on the target.

It stands to reason then, that other qualities weigh more heavily than kinetic energy in making a bullet a manstopper. Yet both the mass of the bullet and its velocity have to figure in somewhere.

In 1927 General Julian S. Hatcher (then major, and officer in charge, Small Arms Ammunition Department, Frankford Arsenal) presented in his book *Pistols and Revolvers and Their Use* a formula for Relative Stopping Power as follows:

$$RSP = E \cdot A \cdot y$$

when E is kinetic energy at the muzzle, A is the cross-sectional area of the bullet in square inches, and y is a shape factor which awards a slight advantage to square or blunt-nosed bullets and penalizes round-nosed jacketed slugs. Within the next half dozen years, however, Major Hatcher was led to revise his thinking considerably, and a reperusal of the Thompson-La Garde report had much to do with this.

Ever since 1873, certain lily-whites in the United States military establishment had been grouching about the recoil of the .45 Colt service revolver. By 1892 the discontent had reached a peak, and the army adopted the new Colt double action with a swing-out cylinder in .38 Long Colt. The weapon was fine enough, but the close quarters fighting of the Philippine insurrection found the cartridge to be virtually ineffectual. Old single-action .45s of 1873 vintage were hastily hauled out of stateside storage and shipped to the Philippines. When hostilities dwindled, a spirit of reflection set in, and the Thompson-LaGarde Committee, composed of Col. John T. Thompson of the Ordnance Corps, who later was to invent the Thompson submachine gun, and Col. Louis A. LaGarde of the Army Medical Corps, was convened to study the question of stopping power in handgun cartridges. Their report, issued in 1904, declared that no pistol of a caliber less than .45 should be considered for military service, and this in turn dictated the chambering of the service automatic the United States was to adopt in 1911. The correctness of this decision has yet to be effectively challenged.

By 1934 Major Hatcher had written a new book and prepared a new formula for Relative Stopping Power. Confessing that his 1927 formula had unduly favored the velocity factor, since energy is a function of the square of velocity

$$(E = MV^2 / 2),$$

Hatcher now thought it far better to base his formula on momentum, which is simply mass multiplied by velocity.

Hatcher's new formula for relative stopping power (RSP), which still stands, is as follows:

$$RSP = M \cdot V \cdot A \cdot y$$

where M is the mass of the bullet, V is its velocity, A is the crosssectional area of the bullet (sometimes called frontal surface or area) and y is the shape factor; or to compact it,

$$RSP = p \cdot A \cdot y,$$

when p = momentum.

Though Hatcher himself presented his formula only in prose, this is without any question the algebraic expression he had in mind. Unfortunately, those who endeavor to work a given cartridge through the Hatcher formula and arrive at a figure for RSP which will correspond to those Hatcher gives in his tables are foredoomed to disappointment; the esteemed general used a unit of mass known only to himself, and did not leave the key to posterity.

Finding ourselves stonewalled trying to work forward through the Hatcher formula, we chose half a dozen bullet weights and velocities which, it seemed likely, were those used by Hatcher in 1934, and ran them backward through his momentum figure, getting values for grains mass ranging from 2.18×10^{-6} to 2.25×10^{-6} . The average of four such figures is 2.21×10^{-6} , which we hereby proclaim the Hatcher Constant.

Before going any farther, it would be good to point out that the weight of bullets is conventionally expressed in grains, of which there are 7,000 in one pound. Mass is ordinarily determined by dividing weight in pounds by 32.16, the constant of gravity. This will not work in the Hatcher formula, hence the need for the Hatcher Constant, whereby each grain weight has a value of 2.21×10^{-2} Hatcher Units of Mass, to coin another new term.

As an example of how Relative Stopping Power may be determined by the Hatcher formula, let us choose a popular hand load, a .38 Special loaded with a 160-grain semiwadcutter (Keith) bullet, at 1,000 feet per second, and trot it through the lists.

The formula, recall, is

$$RSP = M \cdot V \cdot A \cdot y.$$

To find the mass of the bullet, take its weight in grains (160) and multiply by the Hatcher Constant (2.21×10^{-6} or .00000221). This yields the ponderous figure of .0003536, which when multiplied by the velocity (1,000 fps), gives us the momentum, .3536.

$$RSP = p \cdot A \cdot y.$$

To find the cross-sectional area of the bullet, we may use one of two formulae: $A = \pi r^2$ when $\pi = 3.14$ and $r = \text{radius}$, or $A = .7854 d^2$ when $d = \text{diameter}$. Either gives us a figure of .101 square inches, if the diameter of a .38 Special projectile = .358". Hatcher, however, prefers .102 square inches as the area of a .38 projectile, and since it makes little difference, let us use his figure. Momentum times area (.3536 x .102) equals .0360672. RSP, then, will be .0360672y.

The shape factor is y, which takes into account the nose shape of the projectile and the frictional coefficient and malleability of the bullet material. Round-nosed, lead bullets - the standard 158-grain .38 Special for instance - are given the neutral value of $y = 1$.

Roundnosed jacketed bullets, typical of most semiauto cartridges, are penalized with a value of .9. Lead bullets with a very blunt round nose, like the 200-grain .38 Special „Super Police,“ or with a small flat on the point like the .45 Colt, rate a slight edge with a y factor of 1.05. Lead bullets with a large flat point, like the old .38-40 and .38 Colt Special, or like the lead bullet of the .357 Magnum, earn a y factor of 1.1. And, finally, lead bullets with a really square point, like wadcutters and the Keith bullet we are using, have a y factor of 1.25.

Obviously, though, multiplying .0360672 by 1.25 is going to yield a double handful of decimal places for RSP. In order to come out with a more manageable result, we will multiply y by 1,000 before going any farther:

| Bullet | y |
|--|-------|
| roundnose, jacketed | 900 |
| jacketed or hard lead, truncated cone | 1,000 |
| roundnose, lead | 1,000 |
| blunt roundnose or small flat on point, lead | 1,050 |
| large flat on point, lead | 1,100 |
| lead wadcutter or semiwadcutter | 1,250 |

To recap,

$$RSP = M \cdot V \cdot A \cdot y$$

$$RSP = .0003536 \cdot 1000 \cdot A \cdot y$$

$$RSP = p \cdot A \cdot y$$

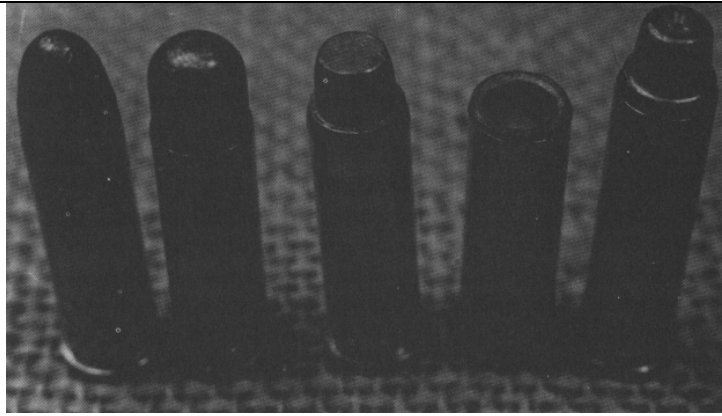
$$RSP = .3536 \cdot .102 \cdot y$$

$$RSP = .0360672 \cdot 1250$$

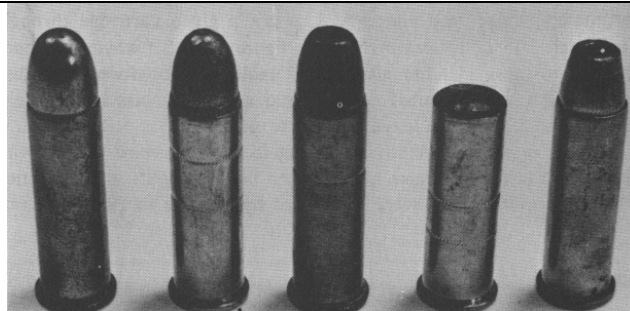
$$RSP = 45.1$$



The usual British answer to the need for increased stopping power is to increase the diameter of the projectile. This five-shot .69 caliber Tranter, firing bullets almost $\frac{3}{4}$ " in diameter, and made about 1865-70, enjoyed a certain popularity among British officers who were dubious of the efficacy of the issue .450 Adams.



Five renditions of the .38 Special: (l-r) the round-nose 158-grain police service load, the overrated 200-grain „Super Police,“ 160-grain swaged „K“ handload, 148-grain cup point handload (wadcutter seated base forward), and 158-grain swaged, 3/4 jacketed hollow point.



Five more .38s: (l-r) 158-grain full jacketed military issue, 158-grain police service, 158-grain Colt Special with medium flat on point, 148-grain factory loaded wadcutter (standard target load) and the 110-grain Super-Vel jacketed hollow point.

This figure does not refer to 45.1 measurable units of anything, but rather supplies a value which is useful in comparing one load with another which has been calculated by the same formula.

Let us look more closely at the Hatcher formula for a better understanding of the elements of stopping power. The mass, velocity, cross-sectional area, and nose shape of the projectile all enter into determining its effectiveness. But in what proportions? As we have seen, kinetic energy, which grossly overemphasizes velocity at the expense of bullet mass, seems from empirical tests to have little to do with stopping power. By basing his formula on momentum, Hatcher was giving mass and velocity a 1:1 value. This can be considered a prudent middle road, since the British have always put more stock in the mass of a bullet than in its velocity, and indeed have felt that for optimum effectiveness against human targets, the velocity should be kept as low as possible while still retaining acceptable range and trajectory.

The next factor to be considered is the cross-sectional area of the projectile, and Hatcher's formula gives it a value equal to momentum. Since cross-sectional area increases as the square of diameter, this is a subtle way of saying that the most important element of stopping power is bullet diameter. In other words, the easiest way to realize a significant increase in stopping power is to go to a larger-caliber handgun. Bullet weight and velocity, hence recoil, can remain the same, but if bullet diameter is increased, stopping power will increase appreciably.

The final factor is the nose shape of the bullet. A round nose will tend to push tissue aside without doing much damage, whereas a square-ended projectile will chop a full-width wound channel and clip blood vessels the roundnose would have left intact. A jacketed roundnose, with its low coefficient of friction and the unlikelihood of its being deformed, even when striking bone, is least effective of all. The y factor in the Hatcher formula recognizes this and, as we have seen, awards each type of bullet an appropriate value.

Here is how a fair sample of handgun loads stack up on the Hatcher scale:

| Cartridge | Bullet | | | | Muzzle | | Barrel | RSP |
|------------------|--------|-------|------|------|----------|--------|--------|-------|
| | Grains | Style | y | Area | Velocity | Energy | length | |
| .22 Short | 29 | RNL | 1000 | .039 | 865 | 48 | 6" | 2.2 |
| .22 Short Hi-Vel | 29 | RNL | 1000 | .039 | 1035 | 69 | 6" | 2.6 |
| .22 LR | 40 | RNL | 1000 | .039 | 1060 | 100 | 6" | 3.7 |
| .22 LR Hi-Vel | 40 | RNL | 1000 | .039 | 1125 | 112 | 6" | 3.9 |
| .25 ACP | 50 | RNJ | 900 | .049 | 810 | 73 | 2" | 3.9 |
| .30 Luger | 93 | RNJ | 900 | .075 | 1220 | 307 | 4 1/2" | 16.9 |
| .30 Mauser | 85 | RNJ | 900 | .075 | 1410 | 375 | 5 1/2" | 17.9 |
| .32 ACP | 77 | RNJ | 900 | .076 | 900 | 162 | 4" | 10.5 |
| .32 S&W | 88 | RNL | 1000 | .076 | 680 | 90 | 3" | 10.1 |
| .32 S&W Long | 98 | RNL | 1000 | .076 | 705 | 115 | 4" | 11.6 |
| .32-20 | 100 | FNL | 1100 | .076 | 1030 | 271 | 6" | 19.0 |
| .38 S&W | 146 | RNL | 1000 | .102 | 685 | 150 | 4" | 22.5 |
| .38 Special | 148 | WCL | 1250 | .102 | 775 | 196 | 6" | 32.3 |
| .38 Special | 158 | RNL | 1000 | .102 | 855 | 256 | 6" | 30.5 |
| .38 Special | 158 | RNL | 1000 | .102 | 1090 | 425 | 6" | 38.8 |
| .38 Special | 200 | BNL | 1050 | .102 | 730 | 236 | 6" | 34.6 |
| .357 Magnum | 158 | FNL | 1100 | .102 | 1410 | 696 | 8 3/8" | 55.2 |
| .380 ACP | 95 | RNJ | 900 | .102 | 955 | 192 | 3 3/4" | 18.4 |
| 9mm Luger | 124 | RNJ | 900 | .102 | 1120 | 345 | 4" | 28.2 |
| .38 ACP | 130 | RNJ | 900 | .102 | 1040 | 312 | 4 1/2" | 27.4 |
| .38 Super | 130 | RNJ | 900 | .102 | 1280 | 475 | 5" | 33.8 |
| .38-40 | 180 | FNL | 1100 | .126 | 975 | 380 | 5" | 53.8 |
| .41 Magnum | 210 | K | 1250 | .132 | 1050 | 515 | 8 3/8" | 80.4 |
| .41 Magnum | 210 | JSN | 1100 | .132 | 1500 | 1050 | 8 3/8" | 101.1 |
| .44-40 | 200 | JSN | 1100 | .143 | 975 | 420 | 7 1/2" | 67.8 |
| .44 Special | 246 | RNL | 1000 | .146 | 755 | 311 | 6 1/2" | 59.9 |
| .44 Magnum | 240 | K | 1250 | .146 | 1470 | 1150 | 6 1/2" | 142.3 |
| .45 Colt | 255 | BNL | 1050 | .163 | 860 | 410 | 5 1/2" | 82.9 |
| .45 ACP | 185 | JWC | 1100 | .159 | 775 | 245 | 5" | 55.4 |
| .45 ACP | 230 | RNJ | 900 | .159 | 850 | 369 | 5" | 61.8 |
| .45 ACP Super-X | 230 | RNJ | 900 | .159 | 945 | 455 | 5" | 68.7 |
| .45 Auto Rim | 230 | RNL | 1000 | .159 | 810 | 335 | 5 1/2" | 65.5 |

Abbreviations:

BNL-blunt nose, lead

FNL-flat nose, lead

JSN-jacketed soft nose

JWC-jacketed wadcutter

K-Keith, lead semiwadcutter

RNJ-round nose, jacketed

RNL-round nose, lead

RSP-relative stopping power

Vel-velocity

WCL-wadcutter, lead

y-Hatcher factor for bullet shape and construction

Area is expressed in square inches, velocity in feet per second, and energy in foot-pounds.

Nearly four decades of experience have proved the Hatcher formula accurate, particularly toward the middle of the scale. The weakness of the formula, which has shown up only in recent years, is that it makes no allowance for expanding bullets. Take the 115-gr. Super Vel .38 for instance. The mass of the bullet is meager, its caliber unimpressive, and Hatcher's formula minimizes its elevated velocity. Yet it is precisely the low mass and high velocity which permit the bullet almost to double its diameter (hence quadruple its cross-sectional area) within the target.

Devising a formula to calculate the stopping power of expanding handgun bullets will be a sticky problem for whoever undertakes it, since the efficiency of each bullet from each manufacturer at various velocities will have to be established beforehand. Thornier still will be

devising the formula so that the results will key into the proved accurate Hatcher tables, thus permitting the comparison, say, between an expanding .30 Luger and the .45 Colt.

Nevertheless, the Hatcher scale stands as an extremely useful yardstick of the practical effectiveness of most handgun cartridges currently in use. For the figures to mean anything, however, they must be related to loads which have seen enough use over the years for their effectiveness (or lack thereof) to be a known quantity.

The Hatcher table assigns a value of 30.8 RSP to the .38 Spl. 158-gr. roundnose load which has been the standard cartridge of the vast majority of America's police to these decades, and long experience has proved it about 50 percent effective as a manstopper. The .45 ACP, the standard American military round since 1911, rates 60 RSP, and is known to be about 90 percent effective in combat. Thus the .45 is 77 percent more effective than the .38, according to the Hatcher table, and 80 percent more effective according to general observation, results which are more than close enough to verify the correctness of the formula.

It should be reiterated that the Hatcher formula calculates stopping power, not killing power. Whether or not death results from a gunshot wound depends primarily on what organs have been punctured. A .25 caliber hole through the aorta will kill just as surely, and almost as quickly, as one of .45 caliber. However, the target will still be able to function and return fire for a minute or more if he is determined to do so, until loss of blood brings on loss of consciousness. Thus a .25 through a major artery will kill, even though it does not put the subject out of action immediately, whereas a .45, even though it misses the artery by a fair margin and does not cause death, will probably put the subject out of the fight instantly, since the shock to the nervous system caused by the impact of such a mass of metal and the wide wound channel it plows is too much to support.

Stopping power rather than killing power is what is needed in a combat handgun. And in order to be reasonably effective as a manstopper, a rating of 50 RSP or better on the Hatcher scale is needed. Much below the 50 mark, results are chancey at best. A .38 Special with Keith bullets can be handloaded up to 50 RSP but lesser cartridges cannot be. In order to wring a dependably lifesaving performance out of such as the 9mm Parabellum, .30 Luger, and .38 Super, one must go the ultravelocity, expanding-bullet route, in which case (a) the load cannot be calculated by the Hatcher formula, hence its effectiveness cannot be predicted, and (b) it cannot be used by the military.

Looking back over the past century, we observe that while the military staffs of the Anglo-Saxon countries have generally paid careful heed to the importance of stopping power in handguns, their Continental colleagues have resolutely ignored, or distorted, the facts. Thus in 1894 Major Bornecque blithely proclaimed that „Revolver calibers, which presently run from .30 to .45, could be dropped to .26 or less with no particular loss.“

Fifteen years later Captain Niotan was also pushing for the smallbores. „We would be prudent,“ he wrote, „to regard with skepticism the claims that small caliber pistols are innocuous,“ thus addressing himself to the problem with an obviously poor attitude, for it is patently unrealistic to regard any handgun as „innocuous.“ On the same page Niotan notes with considerably more logic that, „The factor to keep in mind in this regard is not to avail oneself of the most deadly weapon possible, but of one whose deadliness takes effect immediately, thus ensuring the safety of the man who uses it against a human adversary.“ Niotan realized the importance of the time factor - „whose deadliness takes effect immediately“-but the difference between shock and penetration escaped him completely. One element which doubtless colored his logic was the fact that he was a zealous propagandist for Fabrique Nationale (Browning) in Belgium, and, at least partially in consequence, regarded the .32 ACP as the ideal cartridge! As for the 9mm Browning of 1903, he passed it off as „a sacrifice to the whims of the moment.“

As for the remarkable Colonel Leleu, he was steadfastly for large, heavy bullets, and was perhaps the only French observer to seize upon the significance of the American experience. The westward migration and the War Between the States served as an unparalleled testing ground. For the first time in history the handgun was the basic weapon of tens of thousands of men, and it was this vast occasion which proved the importance of stopping power. From 1831 to the Mexican War, Colt's most powerful revolver was the .36 caliber „Texas Model,“ as it was known. The Texas Rangers prized it for its firepower, but found its impact sadly lacking. Colonel „Rip“ Ford of the Rangers reminisced about the .36s years later. They were, he said: „... five-shooters...little things.... Of course they wa'nt any account with these modern ones because they were too small.... Just after that Colt was induced to make bigger ones for us, half as long as your arm.“ And so he was. When war with Mexico broke out in 1847 the Rangers sent Captain Sam Walker eastward to locate Colt and get him back in business building a mammoth .44 to their prescription. At the outbreak of the War Between the States the .44 Colt Army and the .36 Navy both found favor with cavalry units. The smallbore, however, soon fell out of favor. Its demise was hardly what Niotan might have superciliously characterized as a „whim of the

moment," but more a Darwinian example of the survival of the fittest. Men who wanted desperately to survive found the smallbores unfit for the task. Thus while the '49ers who flocked west a decade before the war carried with them a hodgepodge of effete handguns, those who followed the same trails after 1865 were predominately armed with largebore service revolvers. And when cartridge arms replaced the percussion models of Civil War days, the Westerners stood by their preference for calibers that crowded the half-inch mark. For a long time thereafter, the small cartridges were relegated to pocket pistols, and probably found their largest market in the East.

The American Civil War was a handgunner's fracas of enormous dimensions, the portent of which was largely ignored in Europe, since no European war save perhaps the Crimean had provided even a remote analogy. Only a perceptive elite of Continental officers grasped its significance and to these, the general staffs of the ground forces posed an insurmountable wall of indifference. Thus, as we shall see, as late as 1871 both the French and the Prussian cavalry were still armed with single-shot, muzzle-loading pistols, of ample stopping power to be sure, but otherwise an anachronism. Over the succeeding two decades the French army, in particular, would adopt a superlative series of revolvers, of ample caliber, but inadequate velocity. As soon as smokeless powder came into use, about 1890, stopping power would be a forgotten factor as European armies adopted a new generation of 8- and 9-millimeter sidearms, and velocities broke the sound barrier.

The other major aspect of terminal ballistics-the obverse of stopping power, one might say-is penetration. And like stopping power, penetration is a subject of very practical interest. The club or contractor who builds a firing range needs to know what thickness of sheet metal or planking over existing windows will suffice to render them bulletproof, what amount of overhead baffling will keep bullets from going through the ceiling, or over the backstop of an outdoor range, what thickness of earth fill will make a safe backstop, etc. The shooter who driesnaps at home to keep in practice needs to know what walls will certainly halt a bullet, and which ones an accidental discharge would penetrate.

A police officer in a gunfight will be more than curious to know if the cover he has taken will indeed protect him from his opponent's fire, and likewise whether he can shoot through his opponent's cover to tag the criminal where he sits. When gunplay takes place on a city street, in a parking lot or apartment house, will a well-placed bullet stay in the subject or will it penetrate through and perhaps fell a window-shopper on the next block or a television watcher in the next room? Which handgun loads will penetrate a car door, and which will not?

In an effort to isolate and weigh the factors involved in penetration, and eventually to predict a given bullet's performance in various media, two formulae for penetration have been developed independently by General Hatcher in the United States and by the coauthor of this book, Michel Josserand, in France. The striking similarity of these two formulae may be some evidence of their correctness.

Hatcher's formula for penetration is

$$P = E / RA$$

when P is penetration, E is the kinetic energy of the bullet on impact, A is the crosssectional area of the projectile, and R is the resistance of the target. From a perusal of Hatcher's accompanying text, it would seem much clearer to consider the formula as

$$P = E / A$$

when a general comparison between or among cartridges is wanted, and as

$$P = (E / A) \div R$$

when trying to predict penetration in a particular medium. Units of measure are Anglo-Saxon, with energy in foot pounds (though modern engineers would prefer the convenience of dealing in poundals, Hatcher did not), and cross-sectional area in square inches. Thus in computing comparative penetration of the .45 ACP, as it was loaded in the 1930s, we have a 230-grain projectile at 810 feet per second (at close range muzzle velocity and impact velocity are equivalent), and according to the formula

$$E = MV^2 / 2 \quad \text{or} \quad E = VW^2 / 2g$$

a kinetic energy of 335 foot pounds. Cross-sectional area of the .45 slug

is .160 square inches. P, therefore, is $335/.160$, or 2,094. Hatcher actually gives a penetration factor of 2,140 for the .45 ACP in his tables, but since he got there by dint of calculating kinetic energy 5 foot pounds too high and cross-sectional area a thousandth of a square inch too low, we may write the final two points discrepancy off to a loose slide rule and worry no more about it.

The 2,094, or 2,140 as the case may be, value points of penetration do not refer to that many centimeters, inches, or what-have-you of penetration in any medium. Rather, like RSP points, they offer a means of comparing relative potential for penetration between or among cartridges computed according to the same formula.

When he wanted to predict the actual penetration of a given projectile in a given medium, Hatcher divided the relative penetration value arrived at above by a figure representing the resistance of the target medium. Empirical testing persuaded him that the resistance value of $7/8$ -inch pine baffles was in the neighborhood of 350. If P for the .45 ACP then were 2,140, as he stated, actual penetration in

pine for this load would be $2,140/R$, or $2,140/350$, or 6.1 baffles. Hatcher set up a row of planks and slammed a .45 through seven of them - very creditably close to his estimate. He went further, and tested twenty-seven more cartridges, from .22 LR to .45 Colt, in like fashion. The results justified both the resistance value he assigned pine baffles and the conceptual soundness of his penetration formula.

Before we had learned of Hatcher's work in this area, we had postulated virtually the same formula for relative penetration in Europe:

$$P = E \cdot 100 / A$$

measuring E in kilogram-meters and A in centimeters squared; the function of the 100 was to clear decimals and yield a more manageable result. Those who have read widely will recognize our intellectual debt to General Journée, who in his remarkable book *Le Tir des Fusils de Chasse*, had proposed the formula

$$P = .5WV / S$$

to predict the penetration of shotgun pellets in flesh, when W is the weight of the pellet in grams, V is the velocity in meters per second, and S is cross-sectional area in square centimeters. In his 1949 edition *Journée* revised his formula to read

$$P = (WV^2 / 2g) \div S$$

when g is the constant of gravity.

Our formula is a somewhat less cumbersome rendition of *Journée's*, and when applied to the more popular handgun calibers yields these results:

| Cartridge | Relative Penetration |
|----------------------------------|----------------------|
| .22 short | 24 to 30 |
| .25 ACP (European loading) | 27.5 |
| .25 ACP (U.S. loading) | 32 |
| .380 ACP (European loading) | 33.5 |
| 7.5 mm Mle 1882 Swiss revolver | 34 |
| .38S&W | 37 |
| 8 mm Mle 92 French revolver | less than 38 |
| .32 ACP | 40 |
| .22 LR match | 41.46 |
| .380 ACP (U.S. loading) | 42 |
| .45 ACP commercial | 48.5 |
| .38 Special service load | 55 |
| .45 Colt | 55.5 |
| .22 LR standard | 56 to 65 |
| .44-40 | 62 |
| .38 ACP | 65 |
| 9 mm Parabellum (U.S. loading) | 70 |
| 7.65 mm long MAS | 73 to 80 |
| 9 mm Parabellum (German loading) | 78 |
| .30 Luger | 78 to 88 |

| | |
|------------------------------------|----------|
| .22 LR high velocity | about 80 |
| 9 mm Parabellum (Canadian loading) | 85 |
| .38 Super | 97 |
| 7.62 mm Tokarev | 100 |
| 7.63 mm Mauser | 105 |
| 9 mm Mauser | 108 |
| .357 Magnum | 145 |
| .44 Magnum | 165 |

We began this calculation in the hope of gaining some insight into the comparative penetration of various projectiles in an animal or human target, and from a close perusal of various medical examiners' reports conclude that a projectile rated at less than 10 penetration units on this scale will fail to penetrate the skin. At between 10 and 30 P, the skin will be punctured and some penetration of tissue will take place; a projectile rated 30 P or above will crack major bones, but probably will not penetrate them, whereas at 40 P and above, the bullet will shatter and penetrate heavy bone.

And it is the presence of bones, of course, in an animal target which makes the depth of penetration in such cases unpredictable with any exactitude. The best that can be done is to generalize. Experience leads us to believe that below 50 P full penetration of the torso is unlikely; substantially above 50 P it is almost certain. In one case a felon was shot five times in the chest with a standard .38 (55 P); three bullets exited his back. In another case a soldier was shot with a 9mm Parabellum (78 P) at the range of 75 yards; the bullet penetrated completely even though he was wearing a heavy overcoat. Similar grisly tales can be offered to substantiate the lack of penetration when a cartridge with a low P factor is used. One aspiring suicide shot himself in the chest with a .32 S & W short (about 25 P) only to have the bullet glance off the sternum and follow his rib around just under the skin, inflicting only a minor wound, whereupon he abandoned the project.

At this point we might take a closer look at the penetration formula to see what factors tend to enhance penetration, and what factors serve to retard it. The basic hypothesis is that penetration equals the kinetic energy of the projectile divided by its cross-sectional area. Since energy is a function of the square of velocity, the bullet's velocity contributes a great deal more to its penetration than does its weight or mass. And since the cross-sectional area of a bullet is a function of its radius squared (area quadruples when diameter is doubled), a large-caliber bullet will have significantly less penetration than a smaller one of the same weight and velocity. This stands to reason when we consider that a .45 slug will have some 63 percent more material to move out of its path than will a .38 or a 9mm.

These are the factors that the formulae take into account, but there are others which come into play. One of these is the nose shape of the bullet. A roundnose or spire-pointed bullet will wedge a lot of material to the side which a square-nosed projectile would chop away and push ahead of it, and for this reason will penetrate much deeper. In this respect we might compare a wadcutter to a javelin thrown butt foremost.

Another factor is bullet material. A semiauto bullet with its heavy gilding metal jacket or a revolver bullet cast of hard linotype metal will crash through bone, wood, or metal with very little deformation, whereas a projectile of soft lead will often flatten or mushroom on impact, thus greatly increasing its cross-sectional area and impeding penetration. As velocity is increased above the speed of sound, the chance of a soft-nose projectile's mushrooming on impact becomes much greater; at between 1,200 and 1,300 feet per second mushrooming becomes certain, and we have seen soft-point .45s driven at nearly these velocities expand to .90 caliber in flesh. Therefore the potential for greater penetration which such elevated velocities would imply is more than cancelled by the increase in cross-sectional area.

Since Journée was solely concerned with round pellets, it is understandable that he did not feel compelled to take nose shape and projectile hardness into account in his formula. In our own case we can only plead lack of time for sufficient experimentation. That Hatcher, however, who understood so well the importance of nose shape in estimating relative stopping power, did not include this factor in his formula for penetration is somewhat surprising.

Also regrettable is that Hatcher devised a resistance factor for no other material save 7/8-inch pine bafes. Since these, spaced 1 inch apart, have been the standard medium for penetration testing since time immemorial, his test firing with them served merely to confirm his formula.

The .30 Mauser, .38/.44 (a predecessor of the .357) and the .38 Super gave Hatcher the best penetration, punching through eleven baffles each; the .30 Luger was not far behind, having penetrated ten of the planks, while the 9mm Parabellum pierced nine of them. The .38 Special and the .45 ACP were good for seven each, while the .45 Colt would cut through only

five, which ranked it, as far as penetration goes, alongside such less portentous numbers as the .38 S & W, the .380 ACP, and the .22 LR in what was then called an „outdoor“ load, equivalent ballistically to our current standard velocity. The various .32s would make it through from 3¹/₂ to 4¹/₂ boards, while the .25 ACP came out hangdog with only three.

Baffle-box shooting is interesting, but it must be borne in mind that it may give one a slightly inflated notion of how much material a bullet will actually bull through. I have seen .45 service balls stopped cold in one inch of wood. This same plank was studded with .38 bullets, the bases of which stuck up to a quarter inch above the surface. This was a very dense and heavy old weathered piece of hardwood. It would not give.

Test baffles on the other hand are soft, knot-free pine. In the 1-inch space between baffles the bullet has a chance to rid itself of the plug of splinters it has been pushing, and start into the next plank quite unencumbered.

These considerations, however, should not lull one into thinking a normal room will contain a bullet, nor that doors, tabletops, and sofas make adequate cover. Most handgun rounds will easily penetrate lath and plaster or sheetrock walls; most bullets will punch reliably through one floor-and-ceiling set and have a fine go at the next. „Wall stitching“ is standard room-combat technique for people who engage in such; it works handsomely. On the other hand, a cement block or 4¹/₂-inch brick wall can be depended on to stop any handgun bullet.

Shooters who dry practice at home should never do so except against a wall which is proof against penetration by an accidental discharge. In a frame house the basement will probably be the only safe place. Police officers who may be involved in indoor combat should bear in mind that if the opposition is armed with a serious weapon, furniture and walls may offer concealment but they will afford precious little cover.

With both the police and criminals fully motorized, the question of to what extent pistol fire is effective against automobiles is of some moment. The answer is, „Not very.“ The standard 158-grain service load in the .38 Special, unless it impacts at greater than a 40° angle, cannot be depended on either to penetrate windows or windshield, or to do more than scratch paint on the bodywork. With the popularization of sharply slanted front and rear windowshields, ricochets off auto glass have become quite common in recent years. If the angle of impact is greater than 40°, the .38 will usually succeed in penetrating safety glass.

When the .38 is fired at 90° into a car door, penetration is problematical, and depends on whether the door window is up or down, and on whether or not the bullet strikes braces, cranks, handles, and the like. As a very rough rule of thumb, it might be said that car doors are proof against .38s if the window is down, but not if it is up; we would not, however, care to gamble our life on this hypothesis.

The armor-piercing .357 Magnum which the factories load for police use has a good reputation against automobiles, and is said to penetrate glass and bodywork reliably on any angle of impact greater than 20°. The efficacy of the .357 on engine blocks has been greatly overtouted, but it will generally penetrate the water jacket unless it has a really abominably bad route through the fender.

Loads like the 9mm Parabellum and the 945 fps Super-X loading of the .45 ACP have a good reputation against vehicles, and indeed wherever penetration is desired.

Usually one cannot have it both ways. A load which gives adequate penetration on automobiles will ordinarily give gross overpenetration on human targets. Police agencies that think about what they are doing then should favor a low-penetration load with a high RSP factor if their work is in urban areas, and perhaps a high penetration load with adequate RSP for highway patrol. Examples of the former type of cartridge would be the .45 Colt, .45 ACP hardball or semiwadcutter, .41 „city“ load, .44 Special, etc. Among the latter would be the 9mm Parabellum, .38 Super, .357 Magnum, .41 Magnum, and .45 ACP Super-X.

Some have suggested that ultravelocity soft points in .38 Special, 9mm Parabellum, and like calibers will expand sufficiently on impact with a flesh target to remain within the target, and yet punch reliably through car doors and the like by dint of velocity alone. This may well be so, but we have not yet seen sufficient data to form an opinion.

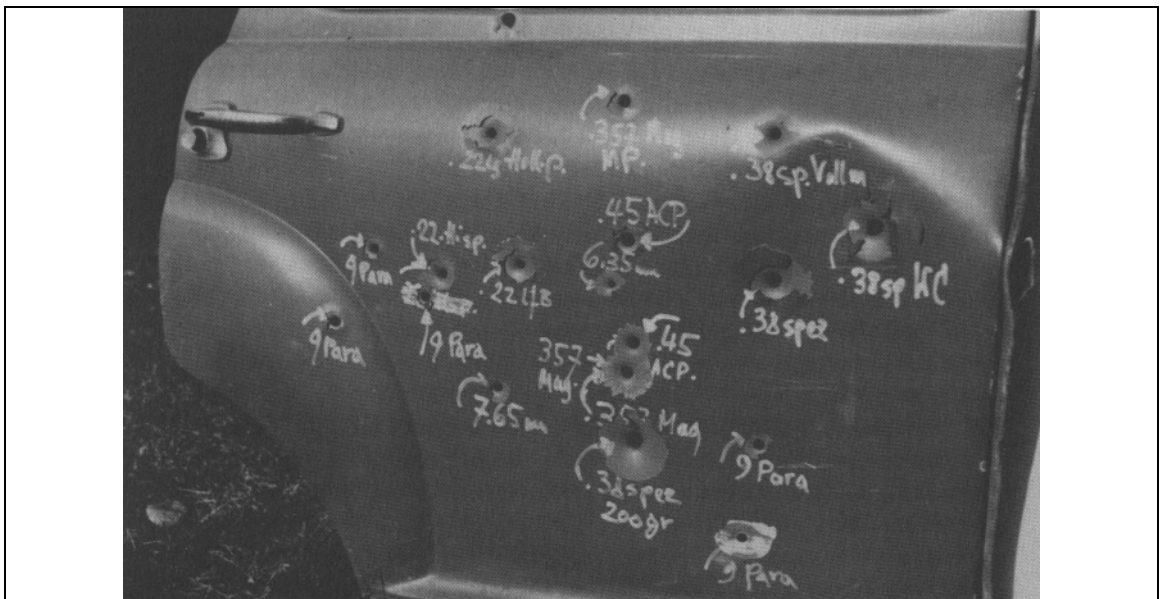
Let us turn from terminal to exterior ballistics and consider two matters which handgunners should always keep in mind. One is ricochets and the other is the maximum range of handgun projectiles. These two intertwine when one realizes that a ricochet will often come to rest at very near to maximum range, depending on the construction of the bullet, the angle of deflection, and the surface off which it is glanced.

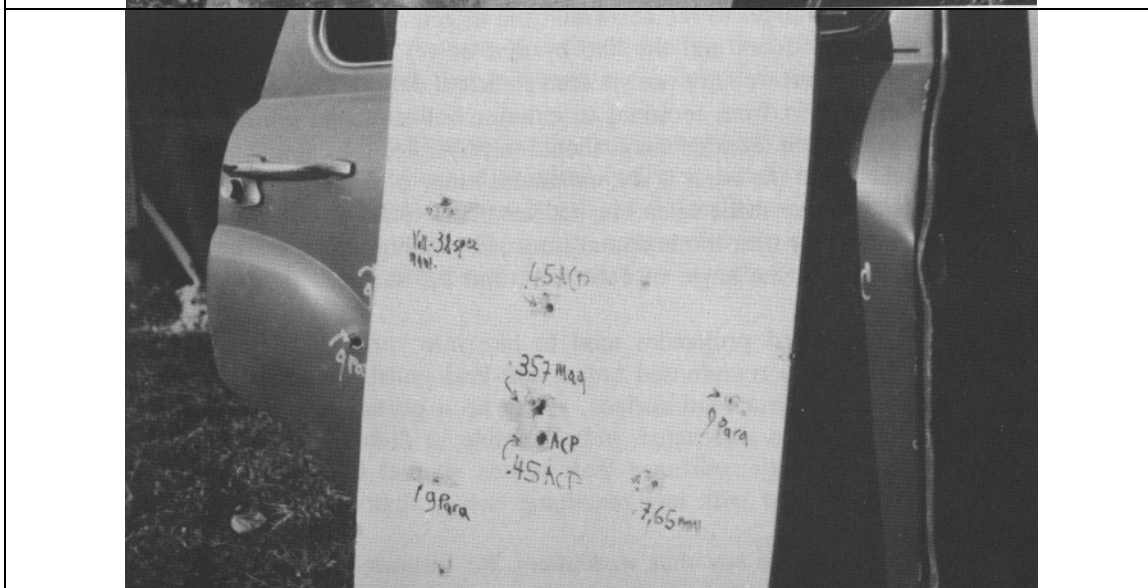
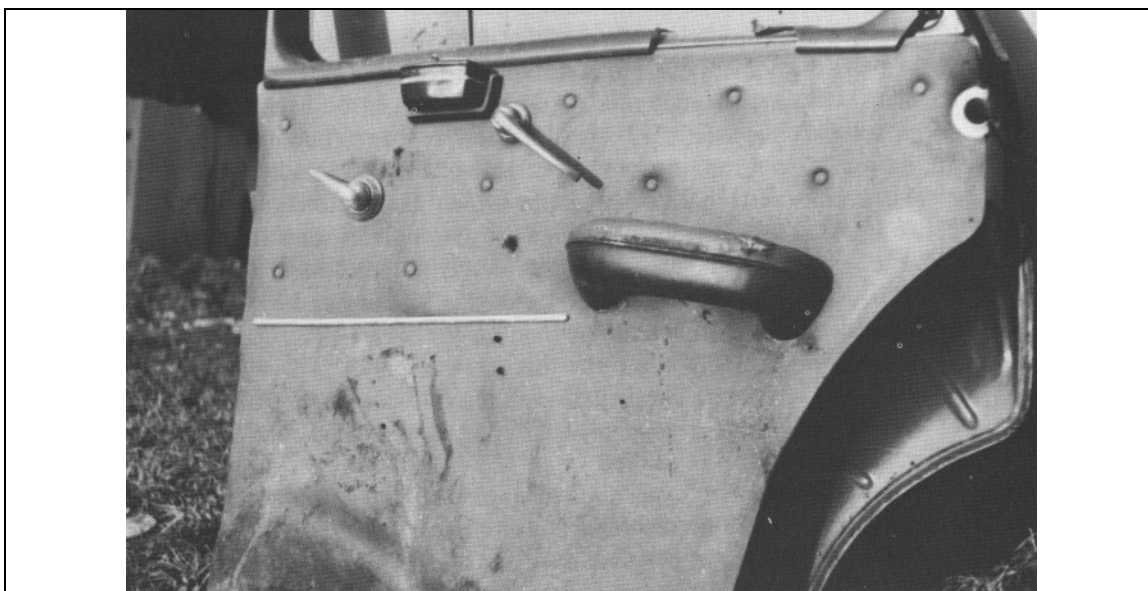
Square-nosed projectiles tend to bite into surfaces which would have parried a roundnosed bullet; soft-lead bullets will be deformed on impact with a hard surface, giving up a portion of their energy, and will, when ricocheted, either tumble in flight or at least offer much greater air resistance than before, so that they come to final rest sooner and with less remaining energy than would a jacketed slug.

A ricochet, particularly with a jacketed or hard-lead bullet, will, we have noted, check in again at very near to full range. How far away might this be? The warning on the flap of .22 LR cartridge boxes reads „Dangerous to One Mile,“ but some who claim to know better scoff at this as alarmist. Better to take it seriously. One chap who did not had his gun confiscated by the police, and after the lab report came back found himself charged with having killed a cow at the admirable range of $\frac{3}{4}$ mile: unpremeditated bovicide; he could have done worse.

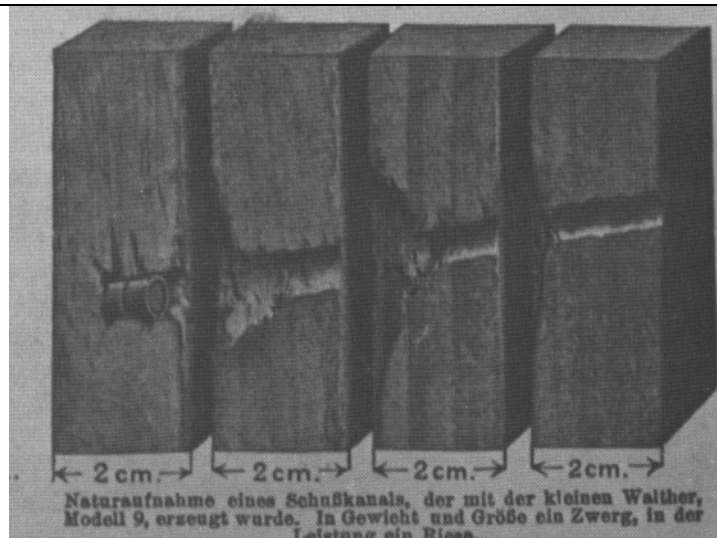
The Army, by empirical testing, found that a .45 auto would throw a slug 1,640 yards, while a .380 ACP was good for 1,089. The NRA technical staff calculated the .38 Special to reach 1,800 yards—well over a mile, while the .357 Magnum, at 2,350, was within 300 yards of the mile-and-a-half mark. The .44 Magnum pushed out to 2,500 yards, while the 7.62mm and 9mm Parabellum rounds were good for 1,900 yards each. The British found that even a watermelon like the .455 Webley would reach an astonishing 1,300 yards when fired at a 35 ° angle above horizontal.

Shooting, when intelligently conducted, is one of the safest of sports. A knowledge of exterior and terminal ballistics-of how far the bullet will reach and the damage it will do on arrival-underlines the importance of never pulling the trigger, unless your life is in immediate danger, without knowing for certain exactly where the bullet will come to rest.





Many holes on the outside of the car door, few on the inside. Only the .45 ACP, .357 Magnum, 9mm and .30 Luger rounds punched through with enough remaining oomph to penetrate the plywood target. The .38 Special full jacketed round raised some splinters, but did not penetrate. Photo set courtesy Siegfried Hubner.



Baffle-board shooting has been a favorite sport at the factories for decades, as this page from a circa 1930 Walther manual, which accompanied their .25 caliber Model 9, shows. Europeans stack their planks closer together than do Americans, hence data are not readily transferable.

HISTORY'S GREATEST HANDGUNS



The Model 1873 French service revolver, perhaps the finest combat handgun of its day, was pressed back into service during the First World War, and gave a fine account in the trenches. The gun rests on a turn of century French military map.

WHAT MAKES a handgun „great“? After reading the following chapter you may legitimately feel more confused than before, for many of the sidearms that dominated their age were, as we point out, markedly inferior to other contemporary pistols which have now almost passed from memory. Many handguns that have been hailed as revolutionary design breakthroughs were, we note, either preceded by sometimes centuries of design antecedents or borrowed outright from nearly contemporary designs of which the patent offices of the day were evidently oblivious. Some others seem to have made an enormous reputation for themselves on the strength of nothing more than bombast and salesmanship—neither of which is a uniquely recent phenomenon.

None of this makes the guns thereby less interesting, and the fact that we have chosen these fifteen from among hundreds is testimony to the fact that they were indeed „great“ even if also greatly overrated. For „glamour guns“ such as the New Model Army of Civil War fame, the Single Action Army of the western frontier, and the Luger, though virtually obsolescent shortly after their introduction, if indeed not before it, were the very stuff of history. They not only appeared on the stage of events with impeccable timing, but they brought with them an almost animistic flair, style, or personality which more than made up for their manifold technical shortcomings.

The 1858 Lefauchaux was an opposite case in point. It appeared slightly ahead of its time. Though a highly practical weapon and a technological tour de force, it was both remarkably homely and fated to endure a rare era of peace on its usually troubled continent. Its influence, however, was considerable, and by projection its presence was dominant in Europe for nearly

half a century. That American firearms scholars have so long overlooked it is a commentary on their regrettable provincialism.

Whereas the big Webleys have a now-disintegrated empire and a sideboard spread of Victoria Crosses in evidence of the glory and grandeur of which they partook, other guns, such as the S & W Combat Magnum and the Charter Undercover have seemed great in our eyes because they stand as the finest examples of a significant and currently popular type, and because they serve as convenient mirrors for throwing some light on the current structure of the industry and on the preferences of modern shooters.

Thus there is hardly a single formula by which a „great“ handgun may be defined, and the fifteen here discussed are by no means the only legitimate claimants to the title, even in our own eyes.

And while the evaluations which follow are intended to be both technically and historically sound, they are also very much subjective. The door then is open wide for the reader to pose his own questions and draw his own conclusions. The preceding chapters, we hope, have given him the foundation to do so competently.

COLT 1860 „NEW MODEL ARMY“

The 1860 Colt, or „New Model Army Revolver,“ as it was known at the time, was Colt's notion of the ideal holster gun. And though it would be in service only a dozen years, it dominated its turbulent decade unmistakably and left an indelible mark on American history. With 129,730 sold to the federal government, it was, by a small margin (125,314 Remington .44s saw service) the most widely used handgun of the War Between the States. Besides those purchased directly by the federal government, additional thousands went to state militia units, or to officers and enlisted men through private channels.

The New Model was first tested by the army in May of 1860. It was recommended for adoption with suggested improvements, and most of the rest of that year was spent tooling up for its production. But the army must have been in no particular hurry for it, for their first delivery of 500 guns did not come through until early May 1861. By the middle of the month before, however, a total of 2,230 of these guns had already gone south in bulk shipments. None were to follow though, for when Lincoln called for volunteers on the 15th of April, four days after the first shot was fired at Fort Sumter, Colt sided solidly with the Union.

Perhaps a contributing reason for the South's instant appreciation of the new Colt was the presence on the military test commission of May, 1860, of a brevet-colonel named J. E. Johnston.

After the holocaust, when war-hardened men went West, the .44 Colt was the sidearm most often at hand. Wild Bill Hickok carried a matched pair until his death, and most of the exploits of such as Jesse James, the Younger brothers, and John Wesley Hardin found the front-loading .44, or guns like it, in star billing.

The New Model was a vast improvement over previous Colt military handguns. The Dragoon revolver it replaced, which had been in service since the Mexican War, was a serious enough weapon; indeed, shot for shot, the .44 Dragoons were among the most devastating handguns ever made, for their 4-pound 2-ounce weight was enough to dampen the recoil of an enormous charge of powder. Few men, however, are powerful enough to manipulate 66 ounces of six-gun with any degree of dexterity, and fewer still would maintain their good disposition while doing so.

In order to remain effective against men and horses, the .44 caliber had to be retained, but at least a pound of bulk had to go. Sam Colt, and his brilliant plant superintendent, Elisha Root, set about one day, late in 1858 or early in 1859, to resolve this formidable problem in hopefully economical fashion. From a profits-loss point of view, the best out would be to rig a .44 cylinder and barrel on their standard .36 Navy frame. The barrel was no great problem, but the cylinder was resolutely too large. A bit of meditation suggested that perhaps the outside diameter of the cylinder could be stepped down about two-thirds of the way back, retaining normal .36 dimensions at the rear, or ignition, end, and that the forward part of the bed of the frame could be planed off to accept the outside diameter of a .44 cylinder at the front. This meant tapering the rear portion of each chamber, behind where the bullet seated, thus reducing powder capacity, but that seemed reasonable enough, for the outrageous powder charges which the Dragoon models handled with equanimity would be unsupportable in a drastically lighter gun. It was a good concept, and it worked. A new rack-and-pinion-type rammer was added, in place of the old simple pivot type. And to advertise the fact that here was a new generation of combat Colts, the rammer housing under the barrel was sensuously streamlined.

The New Model was a beautiful gun, well balanced and easy handling. Even with its 8-inch barrel, integral rammer housing, and underbarrel rammer, it weighed only 43 ounces (2 pounds 11 ounces - the same as the modern Colt Python with 4-inch barrel).



COLT 1860 ARMY The New Model Army of 1860, though hopelessly outdated years before its introduction, was a thing of beauty, easy handling, and a formidable weapon for the first six shots.



It took a flask of black powder, a box of percussion caps, and .44 caliber lead balls to charge the 1860. The Army issued powder and ball in a paper cartridge, but loading was still a production.



The .44 Dagoon, first issue, was an improvement over the Walker Colt of Mexican War fame, and one of the first of an illustrious line of Hartford-built combat pistols. It took a horse to carry these guns, and quite a man to handle them. This fine example is from the Winchester Museum.



The Southern Le Mat, designed in New Orleans and built in France, with its nine-shot .44 cylinder and its .60 buckshot barrel, was far and away deadlier than the Colt.



The contemporary Remington Army and Navy Models were much superior to the Colts. Their solid frame, with the barrel screwed in, afforded better sights, and obviated the frontal wobble congenital to the Hartford guns. Dropping the rammer lever let the axis pin be slid forward for a quick cylinder change-the only practical way to reload on horseback. The Colt had to be taken in half with a screwdriver to get the cylinder out.

Neither mechanically nor practically was it as good a gun as the contemporary solid-frame Remington .44. And the hinged-frame Starr was better than either. The nine-shot Le Mat with its auxiliary .60 barrel loaded with buckshot was far and away a more effective alley cleaner than any six-gun. But the Colt was a Colt, and that made a world of difference.

If the Colt could not compare with contemporary American revolvers, the whole lot was obsolete by European standards. Though Remington and Starr made double-action models of their single-action guns, the army did not care for them. The British knew better, however. They had had the opportunity to compare the Colt with the double-action Adams in the Crimean campaign of 1855. That same year Robert Adams settled the double-action versus single-action controversy for all time by purchasing Frederick Beaumont's patents which incorporated both modes of fire in his gun.

Three years later, in 1858, while the English were still congratulating themselves, the French navy stepped a decade ahead of everyone else by adopting the Lefauchaux service revolver, a breech-loading, metallic cartridge (pinfire), .44-caliber, gate-loading, rod-ejecting six-gun, the like of which Colt would not produce until 1872.

For the Colt, like the near totality of American War Between the States revolvers, was a cap-and-ball type. To load, the gun was turned muzzle upward, and a charge of loose black powder was metered into each chamber. Then a lead ball, the bullet, was placed on the mouth of the bottom chamber, and rammed home atop the powder charge by the rammer underneath the barrel. The ball was usually cast a bit oversize, so that the mouth of the chamber shaved a ring of lead off each ball as it was seated, thus fireproofing the chambers against the possibility of a multiple discharge.

When a ball was seated in each chamber, the gun was turned muzzle down, and a percussion cap was pressed on the nipple that protruded from each chamber at the rear of the cylinder.

In order to expedite this tedious procedure, the military issued paper cartridges, each containing a ball and a premeasured charge of powder. To load, the ball was bitten off, the

powder poured into the chamber, and the ball rammed home. Then, of course, each chamber still had to be capped. All told, a handful for the man on horseback.

The 1860 Army, then, was outright obsolete two years before it was introduced, and remained America's top-of-the-line combat handgun for ten years because most folks did not know better.

COLT 1873 „SINGLE-ACTION ARMY“

As the decade following the Civil War wore on, cavalry officers on the western frontier became more and more acutely aware of the fact that they were fighting Indians with antiques. But Colt and others were unable to market a revolver for metallic cartridges because Smith & Wesson owned Rollin White's patent for cylinders, the chambers of which were bored through from end to end. White's patent was due to expire in 1869, and all Colt could do in the meantime was twiddle their thumbs. Evidently that was all they did do.

When White's patent ran out, it was open season, and Colt, to everyone's stupefaction, had nothing to put on the market. Finally, in 1872, they did introduce a metallic cartridge revolver which, functionally, was nothing more than an 1860 Army with a bored-through cylinder and an ejector rod in place of a rammer. The gun had no top strap, the barrel was still jury-rigged onto the cylinder spindle with a cross wedge, and a crude notch in the hammer nose still served as the rear sight.

The following year, 1873, however, the 1872 model was cashiered and its place was taken by one of the best-known and most successful handguns of all time, the model of 1873, Single-Action Army. Chambered for a new center-fire cartridge, the .45 Colt, the gun was known as the „Peacemaker“ from the beginning. When, in 1878, it was offered in .44-40, .38-40, and .32-20 calibers to mate Winchester's saddle carbine, it was advertised as the „Frontier Six-Shooter.“ And on said frontier it garnered a score of appellations: hogleg, equalizer, thumb buster, Judge Colt, and the like. At the factory it was known as the Model P, and modern texts usually refer to it as the SAA—an abbreviation for Single-Action Army.

And army adoption was swift. The first Peacemaker sold commercially was shipped on September 2, 1873, over two months after the gun was adopted by the military. The SAA was the regulation American military sidearm up until 1892, when it was replaced by a double-action .38 Colt with swingout cylinder, and remained limited standard until 1909, during which time it saw combat in the Philippines.

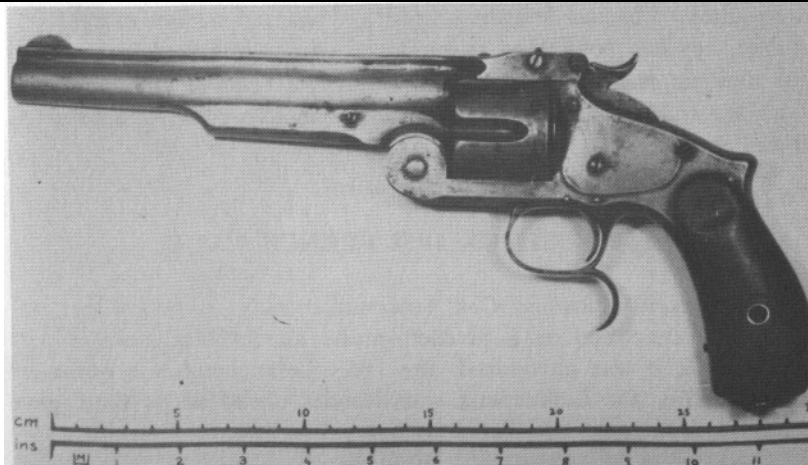


COLT 1873 SINGLE-ACTION ARMY

Model 1873s with 7 $\frac{1}{2}$ -inch barrels were issued to the United States Cavalry, who felt that, with the longer pipe, it pointed better from the saddle. Artillerymen, who used the handgun only as a last resort, valued the convenience of the 5 $\frac{1}{2}$ -inch barrel, while gunfighters preferred it snubbed off just even with the end of the ejector-rod housing.



The SAA loads one at a time via a loading gate on the right of the frame, and unloads the same tedious way by means of the spring-loaded ejector rod housed beneath and to the side of the barrel, a system Smith & Wesson had rendered obsolete four years before.



Smith & Wesson was too busy outfitting the czar with 142,386 of their Russian Model to give Colt competition on the American market. Pictured is the „Old Model Russian.“

During the nineteen years of the Peacemaker's primary military service, the army purchased about 37,000 of them, a small fraction indeed of the 357,859 which were manufactured between 1873 and 1941, when production ceased to make room for more up-to-date implements of war.

Foreign sales of the Peacemaker never amounted to much. The vast majority of those 320,000 or so SAAB which the United States Army did not buy saturated the western half of the United States. Every cattleman and sheepherder, lawman and outlaw, and peaceloving citizen caught between it all, almost to a man, carried or owned a handgun, and maybe seven times out of ten that handgun was an SAA. Any taste could be accommodated. The Model P was offered in any of thirty different calibers or chamberings from .22 rimfire through .476 Eley. And if you liked it a little fancy you could emulate Bat Masterson who, at one time or another during his bombastic career, ordered eight different Peacemakers straight from the Colt factory, built to his specifications.

The availability of the Model P in thirty different calibers was far more an index of the gun's popularity than the cause of it. By what

virtue did the SAA command such a following? The logic went something like this: It was the cavalry sidearm, so it had to be the best. It was a Colt-same conclusion. Colts had been the standard military revolver since before the dawn of memory. There was more. Like its

predecessors, the SAA was an extremely good-looking gun. The grip was comfortable, the balance ideal, the hammer well placed for quick cocking on the way out of a holster. It pointed beautifully for instinctive shooting, had a minimum of moving parts, and seemed exceptionally, rugged.

We can hardly dispute the gun's looks, its handling qualities, or the power of its legendary name. But all things considered, its reputation rested on myth and little else.

Despite the simplicity of its mechanism and the paucity of its parts, the SAA is one of the most fragile guns, internally, ever produced, breaking mainsprings and cylinder stops, and shearing hammer notches and trigger noses with what can only be described as monotonous regularity. Some modern quick-draw competitors find they have to keep six Peacemakers on hand to keep going-two in use, two in reserve, and two in the shop undergoing repairs.

The virtue of the Peacemaker was that in an emergency it would still fire with half the guts shattered. The cylinder could be revolved by hand if need be, and a strip of rubber tied behind the hammer, or a blow with a rock, would set her off if the mainspring went kaput.

Among its contemporaries, the Model 1875 Remington, which looked much like the Colt but had grip straps integral with the frame, thus eliminating three screws which, on the Colt, were constantly falling out, was a better gun. But Remington fell on hard times and did not follow through with the hard sell. The Smith & Wesson Schofield Model was a better gun than either, but S & W was too involved with fitting up 142,386 revolvers for the Czar of Russia to pay much attention to the domestic market. A little while later, the 1882 Webley, which, with modifications, was adopted by the British services in 1887, was better than the lot.

But the Colt had the last laugh, and its last battle was the Battle of Britain. As Churchill's islands braced for the German invasion in the lonely autumn of 1940, British emissaries in the United States bought every Model P in .45, .38, and .357 calibers that Colt still had in stock-163 guns in all. And some Tommies can still remember patrolling the beaches, „with a pony Colt and two cartridges.“ The one which went with that quotation was a .32-20 yet.

When the Peacemaker was left to lie after war's end, it became an instant collector's item, and prices skyrocketed. Hollywood, which could hardly have survived without it, voraciously consumed vast quantities of SAAB, and the publicity which the films and television generated-for this was the era of the „Western“-further flamed the demand for what guns were left. Finally, after much costly foot dragging, Colt resumed production in September, 1955. The price was \$125 (compared to \$17 in 1873) and the calibers were .45 Colt and .38 Special; .357 was added in 1960. Postwar production is identifiable by the suffix „SA“ after the serial number (commencing at #1000SA) but otherwise the gun is just as it always was. Barrel lengths are the old favorites-7¹/₂-inch for cavalry, 5¹/₂-inch for artillery, and 4³/₄-inch (just even with the end of the ejector rod housing), which many gunfighters thought had the best balance of all, as well as the advantage of clearing the holster a particle of a second faster than the longer ones.

The Peacemaker and the Luger are the two most famous handguns ever introduced. As such they offer interesting parallels. Both were remarkably handsome guns, with unmistakable personalities. One was fragile and the other jam-prone, and both by any practical analysis were utterly obsolete shortly after they appeared on the market.

Yet they had something more. They were the stuff of history and the molders of myth. Born in the century of Lincoln and Bismarck, both are still in production, still in use, still in service, and proudly, if rather ludicrously, so.

LEFAUCHEUX 1858 FRENCH NAVY

If the world-renowned Colt Peacemaker may be honestly if uncharitably described as a problem-prone anachronism, obsolescent long before it was introduced, the 1858 Lefauchaux was quite the opposite. For the Lefauchaux was decades ahead of its time, gave excellent service in all quarters of the globe, was massively distributed and widely copied, and its success spurred the development of still better guns. Yet today it is almost entirely forgotten. Such is the fickleness of fate.

The importance of the Lefauchaux lies in the fact that it was the first military revolver to chamber metallic cartridges. The cartridge was the 12mm pinfire (actually 11.1mm, or about .44 caliber).

Americans, in an effort to ascribe as many advances as possible in firearms technology to Yankee ingenuity, tend to dismiss the pinfire as a freak ignition system, and to date the cartridge handgun from the .22 rimfire Smith & Wesson of November, 1857, which was based on Rollin White's patent for bored-through cylinders, issued on April 3, 1855. The fact that Flobert, a Frenchman, developed the rimfire cartridge and made target pistols which fired them, as early as 1845, and that Houiller, another Frenchman, patented an improved rimfire cartridge in 1846, are merely lesser embarrassments to this chauvinistic viewpoint.



The Lefauchaux Model 1858 was by far the most advanced combat handgun of its day, and its influence was felt in Europe and the Empires throughout the century. The free-standing ejector rod was given a proper barrel-mounted housing from 1867 on. Note the tail of the barrel lug seating into the standing breech; and the screw ahead of the trigger guard wedding the frame to the barrel lug.



The Lefauchaux was a rugged, easy-handling handful. The loading gate hinged upward, and the ejector rod was long enough to kick the rather stubby cases entirely clear of the cylinder. Note the notch for the detonating pin in the chamber wall, which the face of the hammer struck from above. The rear sight was a notch in the hammer nose, a la Colt.



That the revolver was first considered primarily a naval weapon in Europe is well demonstrated by this nonregulation hybrid of cutlass and Lefauchaux-type pinfire revolver. The ejector rod was mounted on the scabbard rather than on the gun-an inconvenient touch.



Lefauchaux's 1870 model, which replaced the 1858 in French naval service, was a selective double-action, center-fire, solid-frame revolver with a carefully studied grip which did not slip during firing and was hard to wrench from the grasp in hand-to-hand combat. Its primary fault was that trigger reach was too long for small hands in double action. This is the Mle 1870N, with an improved cylinder-pin release.





The 1858s were called in for total overhaul in 1870, and those which hadn't had an ejector rod housing added since 1867 now got one. The lockwork was changed from single action to double action, the hammer switched from pinfire to centerfire, and a rear sight notch was dovetailed onto the top flat of the barrel lug.

The fact is that the pinfire was one of the three great eras of the metallic cartridge, preceding the rimfire and center-fire in general use, and the reason the pinfire never achieved significant circulation in the United States is that serious, large-bore cartridge revolvers were simply not offered on the United States market until the late-rimfire-early-center-fire era. In other words, Colt stuck doggedly to cap-and-ball guns, and Smith & Wesson just as persistently went on making nothing but rimfire pipsqueaks, for the life of each company's ironclad patents. Thus did progress leave America, birthplace of the combat revolver, rather far in its wake.

Lefauchaux claimed to have invented the pinfire cartridge in 1837, but for want of substantiating documentation credit for the invention is usually given to his equally brilliant countryman, Houllier, whose remarkable patent in 1846 described three types of pinfire, one rimfire, and one center-fire cartridge. But whoever invented it, it was Lefauchaux who made the pinfire the overwhelming success it was in Europe.

Perhaps his first chance to get his concept out where people could see it was the great London Exhibition of 1851, where Lefauchaux displayed a pinfire revolver of pepperbox configuration. Three years later, according to one report, he was back to Britain for another show, this time with a predecessor of the Mle 1858, but the British by now were so embroiled in the Adams versus Colt controversy that they must have taken scant notice.

If the British were preoccupied, the French army showed the height of indifference. As late as the Franco-Prussian War of 1870, their cavalry was still using elegant muzzle-loading horse pistols-fortunately, so were the Prussians.

The French navy, however, grasped the significance of Lefauchaux's gun immediately. For the handgun, in that era, was a more vital arm for the sailor than it was for the cavalryman. Standard tactics were to close with an enemy vessel and board it as quickly as possible. The boarding party fired one round-two at the most, if they had fetched along a spare pistol-then fell to with cutlasses. There was never a chance to recharge the muzzle-loaders.

On the ship being boarded, it was standard practice to keep a bin of loaded pistols on the far side of the deck so the defenders could fall back and snatch up a fresh piece when chance permitted, tossing aside their empty guns on the way. With a bit of luck not too much of the handgun investment was lost overboard in each action, and with a bit more luck the boarding party did not hack their way through to the loaded-pistol bin.

With a revolver, however, the firepower of each sailor, either attacking or defending, would be multiplied by six at the least. All navies seized on this conclusion early along. The French, however, were first to realize the enormous advantages of metallic cartridges. Self-contained, they were relatively impervious to humidity and stood up well over the months away from home port. Moreover, the Lefauchaux, unlike tedious cap-and-ball revolvers, could probably be reloaded at least once during an affray. After two years of testing a number of different revolvers, the French navy, entirely overstepping the percussion-revolver era, adopted the pinfire Lefauchaux in 1858.

The „pistolet-revolver Mle 1858“ was admirably robust. The barrel measured 6.2 inches and the gun weighed 38.2 ounces. Like the Colt of the day, it had no topstrap, and the rear sight notch was a groove in the nose of the hammer. And like the Colt, it gave remarkably fine accuracy, all things considered. The gun loaded via a gate in the right recoil shield, which hinged upward, and unloaded by means of an ejector rod which, parallel to the barrel, was

unfortunately bereft of a housing for most of its length. Those few Mle '58s which survived whatever final disposition the navy made of them are invariably very tight and rigid in the barrel-frame union, displaying none of the frontal wobble so congenital to open-framed Colts, and this despite the fact the Lefauchaux have obviously seen hard service. The difference is in the construction. The Colt barrel was slid onto the cylinder axis pin, which projected from the face of the standing breech, and locked on (barrel onto axis pin) by means of a transverse wedge. The only union between frame and barrel was a nubbin-to-dimple abutment which was antirotational more than anything else. The Lefauchaux barrel lug, on the other hand, extends the full length of the floor of the frame beneath the cylinder, and seats tightly into a mortise at the base of the breechface. A large screw passes up through the floor of the frame ahead of the trigger guard and into the barrel lug, solidly wedding barrel to frame.

The Lefauchaux lived up to its considerable promise, and soon after its standardization by the French navy, began to be adopted by the armed forces of other nations, most notably those of Sweden, Italy, and Russia. Its commercial sale was enormous, copies were ubiquitous, and its distribution the breadth of the Empire was immediate. And rare was the French army officer who did not purchase one privately, relegating his issue horse pistol to parade duty.

Although the rank and file of the French army were rarely so fortunate, several cavalry detachments embarking for duty in Mexico in 1862 succeeded in acquiring navy Lefauchauxs, and employed them so successfully that a considerable outcry was generated for the issue of revolvers to the ground forces, an appeal which went unanswered for eleven years.

The navy, however, still looking ahead, was finding fault with the Mle '58 by the end of the 1860s, and let it be known they were open to suggestion. Lefauchaux rose handsomely to the occasion and, care fully attuned to the navy's wishes, designed a solid-frame, double-action, center-fire revolver with casehead recesses, the mechanism of which was inspired by the Belgian Chamelot-Delvigne. As did the Mle 1858, the new Lefauchaux loaded via a pivoting gate, but this time the ejector rod was properly housed its full length alongside the barrel. Once again, with their new Mle 1870, the-French navy was several steps ahead of the rest of Europe, and leagues ahead of the United States.

With the adoption of the Mle 1870, most of the Mle 1858s were called in for conversion, and this was a fairly complete overhaul. Since there had been no change of caliber, very little alteration was needed on the cylinder and barrel. The hammer, however, was replaced with a center-fire type, and according to arms historian J. R. Clergeau, the lockwork was altered from single action to double action as well. Finally, the old free-standing ejector rod was given a suitable housing. The reworks were termed Pistolet-revolver de Marine transforms 1870, and today, a Mle 1858, one of history's truly outstanding handguns, is, in original condition, a rare find and a prize for the knowledgeable collector.

SAINT-ETIENNE MLE 1892

The Mle 1892 service revolver was adopted by the French army just as the empire-building era was reaching a fever pitch in Europe. The Dutch, Germans, Portuguese, British, and Belgians were all appropriating acreage which made the mother countries look like a pinprick on the globe. But France's world-encircling empire was the largest on earth, making the Hexagon-as Frenchmen termed the old country-almost as powerful a force in the world's affairs as the Pentagon is today. During the forty-three years it was the regulation French sidearm, the Mle '92 was rarely without a war-of either brushfire or bonfire proportions-to fight, and if the truth be told, it has seen an awful lot of battlefields in the nearly four decades since it was officially replaced.

Smokeless gunpowder was invented by Paul Vieille, a French chemist, about 1884, and for once the French military latched onto technological progress almost instantaneously. By adopting the smallbore, high-velocity 8mm Lebel service rifle in 1886, they very tidily rendered the small arms of all other nations obsolete, and must have regarded with amusement the worldwide scramble to catch up, amusement doubtless tempered with regret that the advantage they held could not endure longer.

Everywhere the sun shone, shoulder-gun calibers were dropping from the previous norm of .45 caliber down to a range of from .24

to .32 caliber. Bullet weights were more than halved, and the new breed of projectile wore a copper or nickel jacket in order to hold the rifling at velocities which were increased often a full thousand feet per second. The sludgelike fouling of black powder and the all-obscuring smoke of battle were things of the past, while flattened trajectories pushed effective rifle range out to the quarter-mile mark and beyond.

What was to happen to the handgun? Should it remain at .45 caliber or should it follow the shoulder arm down to .30 caliber? The French showed no hesitation. The new rifle was 8mm; so should the revolver be.

By 1886, before the Lebel rifle had yet gone into full production, the national arsenal at Saint-etienne was at work on an 8mm revolver to replace the 11mm Chamelot-Delvigne of 1873. On May 29, 1886, the Ministry of War requested Saint-Etienne to prepare for the production of 50,000 of the new revolvers, all to be delivered prior to January 1, 1889. This proved on the one hand impossible, since the entirety of the arsenal's energies, facilities, and budget was for the moment devoted to putting the Lebel into mass production, and on the other hand undesirable, since the Mle '87 was not exactly all that could be expected in a handgun, being little more than a scaledown of the Chamelot-Delvigne.

The War Ministry therefore contented themselves with an order for 1,000 revolvers, let on April 16, 1887, and had to await the end of 1889 for delivery. In April of '87, the date of the first firm order for revolvers, the rifle was just beginning to come off the line, some 2,030 being built that month. In April of '88, rifle production was 12,650 for the month; 27,520 for April, '89, and by April, 1890, the shoulder gun was rolling out at the comfortable pace of 35,650 for the thirty-day stretch. It was time to think about the revolver.

The redesign of the Mle '87 was undertaken by Saint-etienne's talented inspector general, Monsieur Richard. The production pattern of the new gun was delivered on June 3, 1892, a first order for 5,000 of the Mle '92 revolvers was let by the ministry the following month, and full-scale production was well under way by the autumn.

Though the Mle '92 looks as turn-of-the-century as high button shoes, its mechanical design remains, some eighty years later, as modern as you please, which is both to say that in its day it was a reasonably advanced design, and that revolvers in general constitute a rather stagnant genre.

All told, it was a good gun. If the reedy barrel made it muzzlelight, it was equally light overall, barely going 29½ ounces empty, and no chore at all to carry. If the broom-handle grip and too-steep grip-to-barrel angle left something to be desired, it was certainly little worse than contemporary Colts and Smith & Wessons. It abandoned the Chamelot-Delvigne mechanism in favor of the Galand-Schmidt action, which Colt had by then appropriated for their new double-action revolvers (and still use, although in 1969 Colt began phasing in their new Mk III design, which is intended eventually to replace their old line).

Unlike the Mle '73 and Mle '87, which unloaded one hull at a time by means of an underbarrel ejector rod, and reloaded via a loading gate, the Mle '92 featured a side-swing cylinder and all-at-once ejection. But whereas the cylinders on the Colt, Smith & Wesson, and the overwhelming majority of other sideswing cylinder revolvers swing out to the left to eject and reload, that on the Mle '92 swings to the right. It is released by a latch on the right side of the frame which pivots rearward, and which is identical in appearance and movement with the loading gate of the Mle '73.

The change in function from loading gate to cylinder latch was a clever one, and worked quite well. When the latch was rocked back to release the cylinder, a lug on its base depressed the double-action strut of the hammer, thereby disengaging the mechanism. If the trigger was pulled while the latch was open, the hammer would remain forward, but the hand would rotate the cylinder in a normal fashion. If an effort was made to cock the hammer with the thumb, the latch lug would block its movement. The combination of rightward swinging cylinder and pivoting cylinder latch was a slightly more fumbleprone arrangement than the Colt's, but not enough so to make the criticism sometimes leveled at the French gun on this account of much moment.

The Mle '92's most interesting feature was the side plate which, mounted on the left, was secured at the back by a large-headed screw which passed through the pawl or recoil shoulder of the frame from the right. The sideplate was hinged to the frame at the front, and when the large-headed screw was loosened, the gun could be opened like a book, exposing the mechanism and making the Mle '92 the easiest revolver to inspect, disassemble, and repair that has ever been made—indeed, one of the few double-action revolvers that can compare with a semiauto pistol for ease of field maintenance.

The „hinged receiver“ construction for housing the mechanism has caught the fancy of other designers from time to time. The Austrian Model of 1898 Rast-Gasser service revolver turned the French system around by hinging the sideplate at the rear. The Saint-etienne 1925 prototype semiauto pistol, which was unsuccessfully offered as a replacement for the Mle '92, hinged the left side of the receiver at the bottom of the grip. More recently, the Danish Madsen Model 1950 submachine gun was hinged at the rear of the pistol grip, the whole gun opening in perfect halves when the barrel nut was removed.

Production of the Mle '92 began late in 1892, during which year 5,000 were manufactured. Production records of the revolvers to the turn of the century are:

1893-25,000 1896-17,089 1899-13,822
1894-30,534 1897-30,114 1900-19,438
1895-21,200 1898-14,106



MODEL 1892 FRENCH SERVICE The Model 1892 French service revolver helped build the world's largest empire, and partook of its fall. It was rugged, accurate, and easy to carry and use. Its only major defect was the low stopping power of its 8mm cartridge.



The Experimental Model of 1885, chambered for the 11mm center-fire Mle 1873 cartridge, was the first in a series of transition guns which preceded the 8mm Mle 1892. It incorporates the improved Schmidt action, the hinged sideplate, and the cylinder-locking system of the Mle 92, but not the swing-out cylinder and multiple-ejection features that would come later.



The experimental model of 1887 was largely a scale-down to 8mm of the Mle 85. A worthwhile change, abandoned before 1892, was the frame-mounted, floating firing pin. This gun, serial number 8, was built at Saint-Etienne in 1888; only 1,000 of the 1887 model were produced.



The Mle 87, like the Model 85, used the Mle 73 loading gate but employed an ejector rod which was housed „at rest“ inside the hollow cylinder-axis pin, and pivoted over in line with the top right chamber for unloading by means of a collar mount that encircled the breech end of the barrel, a system popularized by Emile Nagant in Belgium.



The 1892's cylinder swung to the right to eject and load, and borrowed its latch from the loading gate on the 1873. Note the coin-slotted side-plate screw through the frame prowl.



The Mle 92's side plate hinged open like a book, making it one of the easiest revolvers to clean and maintain ever designed. It used a Galand-Schmidt action, as did Colt.



Thus the French army entered the new century with 171,303 of the new model in service. For reasons best known to themselves, the bureaucracy still regards the total number of Mle 1892s manufactured as a „military secret“ of great portent, and steadfastly refuses to release production figures after 1900. If we were to take 20,000 per year as an average figure and extrapolate forward, some 336,000 or more should have been on hand by the commencement of World War I. Whatever the true figure may have been, it was judged grievously insufficient, for when hostilities opened, the antiquated Mle '73 was widely pressed back into service, and French purchasing commissions ransacked Spain for usable handguns. So much for armchair logisticians who belittle the pistol as a military arm—those who have to fight always seem to feel otherwise.

Although formally replaced in 1935 by a semiauto pistol, the old '92 saw wide use during World War II, particularly by the French underground, and according to a reliable source, the last lot came off the line at Saint-Etienne in late 1945. Vast quantities of '92s are said to be still stockpiled in French arsenals, and it was not until 1950 that the Gendarmerie retired the last of their revolvers; some say they did so grudgingly.

Meanwhile '92s were still barking, giving a fine account of themselves—and mostly on the other side—in Indochina and later in Algeria. Their distribution throughout the now-crumbled empire they helped build was considerable, and it will be decades yet before the last of them has spoken in anger.

As a combat revolver, the Mle '92 had only one grave shortcoming, and that was its caliber. Its 120-grain .32-caliber bullet departed at a leisurely 738 feet per second, and the terminal results are what could have been expected. Its stopping power was grossly deficient, yet this seems not to have bothered the military to an appreciable extent. They liked the gun, and particularly its convenience. When they replaced the Mle '92 with a semiauto in 1935, they chose one equally as convenient, and equally as ineffectual. But at least with the revolver there had been a reason. Barrel specs for the Mle '92 are 8mm bore diameter, 8.2mm to 8.23mm groove diameter, 4 grooves at 1 turn in 240mm—quite the same as the Lebel rifle, indicating that the choice of caliber for the handgun had been dictated from the start by the desire to scrimp on barrel tooling.

This rare variation of the Mle 7892, of which only a handful were built, is known to French collectors as the „Mle 92 a pompe“ or „pump-type M92.“ The rather girthsome ejector-rod housing locks into the front of the frame, and is pulled forward to release the cylinder to swing out; thus the absence of the usual Mle 73-92-type loading gate/cylinder latch. Somewhat analogous systems were used in the U.S. a half-century later on the High Standard Sentinel and the Charter Undercover.

THE WEBLEY TOP-BREAKS

By any scale of measure or frame of reference, the big Webley was one of history's two or three foremost combat handguns. True, it introduced no radical new principles of design and, a half century after its introduction, could be criticized as a national anachronism, an antiquated artifact held over from the Victorian era, but for brute reliability and practical efficiency, the Webley was beyond reproach. The British had a very clear notion of what they wanted in a combat handgun, and the big Webley mirrored this philosophy with rigorous exactitude. And if the Webley had concealed serious shortcomings, these would have soon been exposed, for probably no other handgun has seen such constant combat. Indeed, many more famous handguns which in recent years have been garnished with myth were summertime soldiers and sunshine swordsmen when compared with the Webley. The Colt Peacemaker is a prime example. Adopted in 1873 and replaced in 1892, it missed the War Between the States by a decade and a half, and was obsolescent by the time of the Spanish-American War. Its only actual combat service was during the off-and-on skirmishing of the Indian campaigns, and as substitute standard during the Cuban and Philippine forays. Were it not for the romantic mantle it earned as part and parcel of the taming of the West, it would long since have been forgotten. Not so the topbreak revolver of Webley's design, which was in battle somewhere virtually from the day of its adoption in 1887 until its ultimate retirement in 1957.

Birmingham, England, in the early decades of the nineteenth century, was the world's foremost center of small-arms production. Britannia had ruled the waves for some time, and was, with the dawning of the second Empire Era, beginning to rule a preponderant proportion of terra firma as well. To supply the burgeoning market was a host of enterprising revolver makers, neither the least nor the greatest

of which was the small firm of P. Webley & Sons. It was a rough game. Robert Adams was making it, by virtue of the fact that his revolver was government standard, but Webley, Tranter, Deane, Pennell, Bentley, Harvey, Lang, and the rest were finding it hard sledding. Even Adams,

without his army contracts, would have been in a desperate plight, for none of the English artisans could even remotely match prices with Colt. And by 1883 all but Webley had folded.

Colt had pioneered the mass production of revolvers using precision machine-made parts which were very nearly interchangeable. His Connecticut factory ranked as a „national works“ during the War Between the States, and his London factory cast his shadow large across the European continent. In the face of Colt's awesome reputation and his thirty years of accumulated expertise in mass production, the British revolver trade crumbled.

The only chink in Colt's arms-vending armor was the fact that the British military, after its experience in the Crimea, was resolutely opposed to a single-action revolver, and Colt resolutely declined to introduce a double-action. Webley foresaw the potential consequences, and began preparing to take advantage of them by studying and introducing, as rapidly as possible, mass-production procedures in his own plant.

Webley's chance should have come in 1880. The Adams was due for replacement, and Webley, then the greatest revolver maker in Britain, would within three years be the only one. But the army insisted on adopting their „in house“ design, the Enfield .476, and Webley had no choice but to defer. The ungainly Enfield was intensely detested by the using services, and by 1887 protests from the field had reached such a crescendo that whatever governmental pride was involved was bravely, if tardily, swallowed. On July 17 the War Office let a contract to Webley for 10,000 of their .455 revolvers, to be known as the Mark I.

The Webley design was inspired by the top-break, simultaneous ejection Smith & Wesson American, Russian, and Schofield models, and evolved through the Webley-Pryse of 1876 (Pryse's patents covered the frame) and the Webley-Kaufman of 1880 (Kaufman and Webley's patents covered the latch, the ejector, and other components).

Webley's design reached perfection in his Model of 1882, and the Mark I of 1887 was in essence a more easily mass-producible version thereof, tailored to the military's liking. It differed from the 1882 in having a separate trigger guard which screwed to the frame, a hammer-mounted double-action strut (the commercial guns had first a trigger-mounted lifter, later a forward-moving sear also attached to the trigger which engaged a notch on the lower periphery of the hammer to effect double action) and a solid frame without a side-plate, the action components being inserted from above and beneath during assembly.

Features common to all Webley revolvers thenceforth were the hinged, break-open construction, automatic ejection, and the horseshoe-type latch incorporating the rear sight, which passed over the top of the gun securing the topstrap to the standing breech, and extended down on the left side of the frame to form a thumb lever. Although Webley's assertion that the horseshoe latch made their gun as strong as a solid frame revolver was probably in excess of the stern truth, it was certainly far more than adequate for the cartridges used, and stood up to hard service without complaint.

Webley .455s in six successive models or „marks“ were the service sidearm of British and Colonial forces from 1888 to 1932. The first five marks were distinguished by round or „birdshead“ grips, and 4-inch barrels for the most part. They look identical at a glance. The Mark VI of World War I fame has a square butt and a 6-inch barrel, and is the commonest of the lot, some 310,000 having been produced during the war.

Marks I through IV succeeded one another fairly briskly. The Mark I, as previously noted, was adopted in 1887, and saw its first use in isolated combats in Africa and India. In 1894 it was succeeded by the Mark I*, which differed from the Mark I in having a recoil shield which was detachable rather than being machined integral with the standing breech portion of the frame. This further simplified manufacture, and was a feature of all succeeding Marks.

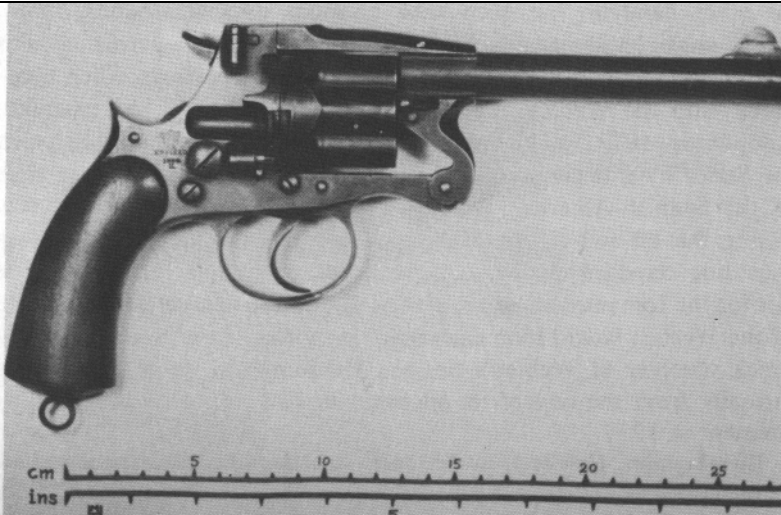
The Mark I* could not have been manufactured in much quantity, since it was succeeded later that year (1894) by the Mark II, which had a larger, heavier hammer, easier to cock on horseback, and which dispensed with the recoil shoulder at the top of the backstrap which seated against the web of the hand when the gun was gripped. The backstraps of Mark II-V revolvers formed a smooth curve from standing breech to butt, rather like the Colt Peacemaker.

Three years later, in 1897, the Mark III was adopted. It differed from preceding issue in the means by which the cylinder was dismounted. The cylinder spindle, on previous marks, had been part of the cylinder assembly, and the whole affair could be removed from the barrel by means of a thumb button on the left of the barrel lug. Beginning with the Mark III, the spindle was permanently affixed to the barrel lug, and the cylinder was retained by a stirrup cam, the cross-member of which engaged a groove in the gas ring on the front of the cylinder. This construction was patented, and was used on all succeeding Webley and Enfield revolvers.



WEBLEY TOP-BREAKS

The .455 Webley Mark I was the first of a series which became the world's greatest combat revolvers. Later marks abandoned the recoil shoulder at the top of the backstrap, and changed the cylinder-mounting system.



The adoption of the Webley was delayed for a few years by the obstinate introduction of the resoundingly unsuccessful Enfield of 1882.

The following September, 1898, the Webley took part in its first major battle, at Omdurman in the Sudan, where a British force under Kitchener killed 11,000 of the late Mahdi's troops while losing only 386 of their own men, a lopsided tally which firmly established British authority in the area for some decades to come.

The Mark IV, adopted in 1899, retained the improvements of the Mark I, but reverted to the small-style hammer of the Mark I. The Mark IV was the standard British sidearm during the Boer War of 1899-1902, and first saw action in the battles of Ladysmith, Kimberley, and Mafeking. Evidently it proved entirely satisfactory, for it remained unchanged for fourteen years.

The year 1913 saw the adoption of the Mark V, which was identical to the Mark IV, save for having a cylinder .012 inch greater in diameter to provide a greater safety margin with smokeless powders. With the commencement of World War I, Webley built 20,000 Mark Vs, then terminated production to make way for the Mark VI, which was introduced in 1915.

Some of the Mark V production came through with 6-inch barrels, which must have been indicative of service dissatisfaction with the 4-inch tubes of previous issue, for almost all Mark VIs had 6-inch barrels. The primary improvement secured by lengthening the barrel was the consequently increased sight radius, and full advantage was taken of this by fitting a replaceable front-sight blade and modifying the shape of both front and rear sights. The backstrap was squared at both ends, giving a recoil shoulder similar to that on the Mark I, and a square butt. In exchange for more weight and bulk, the military were getting a better pointing,

more accurate sidearm, less chance of grip slippage during firing, hence greater control and faster, more accurate follow-up shots.



The Mark VI was the last of the big .455s. Adopted in 1915, it was the official British side arm during World War I, and 310,000 of them were manufactured before hostilities halted. It was widely used in World War II as well.



Webleys are still built and still bark. Besides the Mark IV .38 police model, the Birmingham firm produces this .32 pocket model, with a safety lever for their more timorous customers.

Such was the wartime shortage of handguns that everything available was pressed into service, including all five preceding marks of issue revolvers as well as obscure antiquities such as the Royal Irish Constabulary Model and the British Bulldog pocket revolver, all in a hodgepodge of calibers. Additional handguns were bought from Spain and the United States, further complicating the logistical situation, and Webley was given an open-ended contract for the Mark VI, with a production rate of 2,500 revolvers a week requested. By war's end, Webley had built some 310,000 of the big .455s.

With the postwar era came the inevitable bitching about the ungainliness of the service revolver, and British ordnance set about to find a revolver that would be lighter and more manageable than the Mark VI, without sacrificing its stopping power. Somehow they managed to persuade themselves that a 200-grain .38 bullet at 600 feet per second would be equally as effective as a 265-grain .455 bullet at 600 fps, and Webley was commissioned to design a revolver for this anemic load.

The result was the Mark IV .38, a simple scale-down of the Mark VI .455. Since adoption was not forthcoming, it was named in Webley's commercial series, and its designation had no rapport with the official Mark IV .455.

For some unknown reason, the government was not satisfied with the Webley .38, and retreated to Enfield to design their own gun. What they came up with is best described as a Colt mechanism with a modified Smith & Wesson cylinder stop in a Webley commercial Mark IV frame with a sideplate added. All the previous .455s - Marks I through VI-were now generically dubbed „Pistol No. 1, Mark“ whichever, to distinguish one from the others, and were classified as substitute standard. The new Enfield .38 was introduced in 1927 as the „Pistol No. 2 Mark I“ and was given final approval for service in 1932. It was a good revolver, but no better in any significant respect than the competing Webley. The Enfield was the standard sidearm through World War I, the Korean War, and all the postwar unhappinesses in which Britain found herself a part. Cyprus, Transjordan, Malaya, and Mau-Mau-infested Kenya were all home to the Enfield. The abortive Suez invasion of November, 1956, was its last campaign.

Webley, meanwhile, back in the late 1920s and early 1930s, with a proper British stiff upper lip to recent injustice, was finding a ready reception for their .38 Mark IV among domestic and Imperial police and security forces. Thus when John Bull was caught with his pants down at Dunkirk, the Mark IV was fully tooled and in production, ready to help alleviate Britain's handgun shortage crisis. And having been snubbed for no good reason a decade or so before, Webley must have drawn some sort of grim satisfaction from seeing the government

beating a hasty path to their door only several metaphorical steps ahead of the Panzers. Every .455 of whatever mark was already degraded and in service, not to mention such as the .450 Adams!

The Mark IV .38 somehow looked a hell of a lot better than it had in 1927. A contract was quickly let, and the gun gave valiant service throughout the war. In the postwar era the army reopted for the Enfield, and Webley returned to their Commonwealth and domestic police and security markets. Today the Mark IV .38 is still in service, and still in manufacture. No gun has a more glorious heritage.

MAUSER 1896 „BROOMHANDLE“

„Model 1896 Military“ was its official designation, and „C-96“ its informal one. Anglos call it the „Broomhandle“ while German vernacular labeled it the Kuhfusspistole (cowfoot pistol), both disparaging references to its almost 90°, blackjack-shaped grip. By whatever name though, it was the world's first successful automatic pistol, and one of the most remarkable and widely distributed weapons of all time.

The Broomhandle was patented in 1896 by Paul Mauser. Production began in that year, reached full tilt in 1898, and continued through 1945, by which time well over a million had been made. Although it was never officially adopted by the German government, it was widely used in both world wars as a substitute standard arm, and

the full-auto version was said to have been particularly popular with the SS. The Italian navy adopted the big 96 before World War I, and the Czarist Russian army bought a quantity as well. The Broomhandle soon became and remained the prestige gun in the Orient and on the Balkan Peninsula. Particularly popular in Manchuria, it also saw wide use in China, where it was frequently copied, sometimes in .45 ACP caliber. The Shansi Province Arsenal is said to have made about 6,000 C-96 copies.

Numerous Spanish manufacturers copied it as well, some in toto, others, like Astra, faithfully retaining its unmistakable silhouette while putting an entirely different mechanism inside. Most of the Spanish production seems, to have been funneled to South America, where evidently there were not enough Mausers to meet the demand.

After the October Revolution of 1917, the Red Army found the Czar's Mausers much to their liking. The Bolsheviks reordered, and when the Tokarev pistol was adopted by the Soviets in 1930, it was chambered for the Mauser cartridge, as were all the Red SMGs of the World War II and the Cold War era, and as is likewise the current Czechoslovak Model 52 service pistol.

On either the practical or the aesthetic plane, the C-96 leaves something to be desired. The standard model (1912) goes a foot long with its 51h-inch barrel, weighs barely shy of three pounds empty, has an

atrocious balance, a reprehensible grip, and is one of the ugliest guns ever fashioned by man. It was wearisome slow to get into action, its stopping power was negligible, and its wooden holster made it about as handy to pack as a half-cord of kindling. Wherefore then its vast popularity?

One factor, of course, was that it was the first autoloader on the scene, and the scene was all set for it. Probably the gun's first bleeding came at the Battle of Omdurman in the Sudan on September 2, 1898, where a subaltern of the 21st Lancers named Winston Churchill, whose saber arm was stiff from an old wound, used the Broomhandle to shoot his way clear of entrapment.

From 1899 to 1902, the Kuhfusspistole found an enthusiastic following among the gunwise Boers of South Africa, and Churchill, now a war correspondent, found himself this time on the other end of the Mauser's reedy barrel. Churchill, being Churchill, was quite undaunted, and had of course fetched his own Mauser along for the festivities. All this was jolly good publicity, and it has never since ceased. No European grade-B espionage flick would be complete without an ominous-looking C-96 in the hands of the forces of evil-and no gun can come close to matching it for ominous looks. Without doubt its finest hour, literarily speaking, came when the 1932 fullauto model, this time in the hero Caneton's hands, took star billing in Gavin Lyall's classic *Midnight Plus One*.



MAUSER 1896 „BROOMHANDLE“

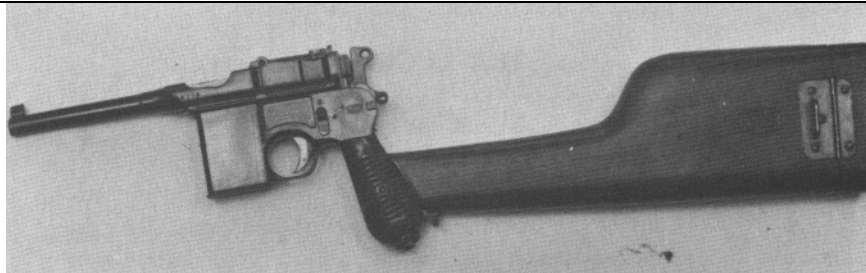
The 1896 Mouser was as ungainly as a garden hoe, and about as lovely, but it was highly accurate and quite reliable, and its ten semiauto shorts, each departing, at 1,400 feet per second, opened a new chapter in handgun history. This is the 1899 modification.



Although Mauser had experimented with removable box magazines as early as 1906, and a few of the 1930 series broomhandles were so offered, a glance at the magazine latch ahead of the trigger, and the spare box, is enough to make us reasonably sure that this is a 1932 full auto model, as indeed it is. Experienced Mouser collectors would draw similar conclusions from the frame-milling pattern above the trigger and the lack of grooving on the receiver-rail housing, both of which say „late 1930 model or 1932 model.“



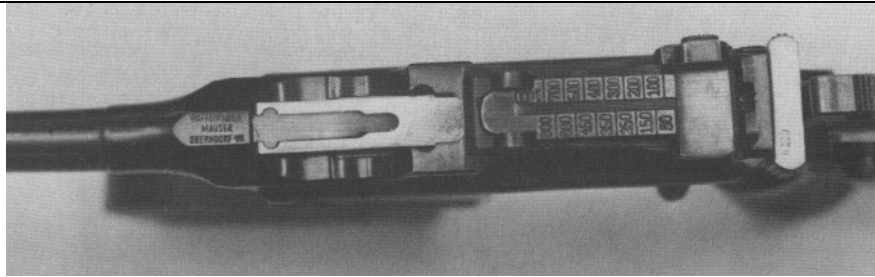
Other side of same gun with stock and long magazine fitted show the Westinger-type full auto selector lever, the more common type on the Schnellfeuerpistolen.



This Model 1932 or 712 (both designations are correct) with stock attached carries the rare Nickl-type selector.



A close-up of the Nickl selector. The grooved receiver-rail housing indicates very early, perhaps prototype, manufacture. Nickl was a Mouser engineer who later had a strong influence on Czechoslovak handgun design.



The broomhandle was commonly sighted to 1,000 meters, which, granted it was a highly accurate gun, was still wishful thinking.

In truth, the Mauser was not so much a pistol as it was a collapsible carbine. The wooden holster, which came with each gun, served as a clip-on shoulder stock, and the rear sight was graduated, optimistically, sometimes to 700, sometimes to 1,000 meters. Ballistically, the rig is still more than modern. Its light, ultravelocity .30caliber bullet (86 grains at about 1,400 fps) gave it a taut trajectory which took advantage of the steadiness of the shoulder stock. In good hands it was a certain proposition to about 200 yards. Its semiauto operation and the sustained fire capabilities of its 10-round, stripper-fed magazine gave it firepower no other shoulder arm of the era could remotely approach. For artillery, cavalry, and noncoms, the C-96 made enormous good sense, but the logic behind it seemed to fade from view after World War I, until finally such authorities as Allen and Wilson would dismiss the concept as nonsense.

Today, the magnificent Mauser is a collector's piece. But the concept it introduced-pistol cum carbine cum submachine gun-is today experiencing a renaissance on both sides of the iron curtain.

THE LUGER

The most famous, and indeed the most remarkable, handgun in history is, with little question, the „Pistole Parabellum,“ or, as it is known in the English-speaking world, the „Luger.“ Introduced in 1900 by the Ludwig Loewe facilities of DWM in Berlin, the Luger, according to certain reports, saw service almost immediately as the privately purchased sidearm of German officers sent to help quell the Boxer Rebellion of 1901 in China.

The Swiss army adopted it on April 2 of that year, and the Luger remained the standard Helvetian officers' sidearm until 1948, and is still considered substitute standard, since many Swiss officers prefer it to all others.

Following the lead of the Swiss, Bulgaria, Brazil, Chile, the Netherlands, and Portugal adopted the Luger in rapid succession, to be followed by the German navy in 1904, and the German army in 1908. Some two million were produced by the end of World War I, and by the time production finally ceased in 1944, some two and a half million are estimated to have been built, and the gun had seen service in some official capacity or other by forty different governments around the globe. Today, almost three-quarters of a century after its introduction, the magnificent Luger is still in official service in Portugal, and still at war in Angola.

Though production was halted at the end of World War II, the Luger, like the Peacemaker, declined to die. Today it is going back into mass production at its old home, the Mauser Works in Germany, and once again nostalgic armies are said to be queueing up to buy it.



THE PREDECESSOR OF THE LUGER

The Borchardt was something less than could be asked of a sidearm, but fable has it that its inventor regarded it as perfect, and therefore its redesign fell to Georg Luger. This example has an unusual stock.



Luger did away with the Borchardt's bulbous recoil spring housing, relocating a laminated two-piece recoil spring behind the magazine well. This somewhat feeble arrangement required the breech to be latched shut. Arrow points to toggle hook on frame.



Close-up of 1900 Luger shows toggle lock, inset into the knob, locked down over frame hook. On firing, the entire upper receiver assembly recoiled back until the latch was clear of the frame hook, at which point the toggle knob impacted the ramp on the frame, which „broke“ the knee joint and unlocked the breech.

Like Marlene Dietrich, the Luger has an aura of Teutonic sensuality that is seemingly immortal. Like her, it is still in honorable service, and seems to suffice admirably.

Viewed in the cold light of practicality, however, the Luger is thoroughly antiquated, and has been obsolescent since 1911. It is ill balanced, has a chronically poor trigger pull, is sensitive to dirt and abuse, can be inadvertently fired when partially disassembled, is slow to get into action, is inherently jam prone, is difficult to holster properly, and is terribly expensive to manufacture.

On the other hand, it has a comfortable grip, points well in novices' hands for instinctive shooting, and has a very strong action. But its only two qualities of any consequence, when it comes down to it, are its seductive good looks, and its guidon staff of campaign streamers.

The pistol took its name from Georg Luger, Austrian by birth, military by training, a former associate of the brilliant Austrian arms designer, the Ritter von Mannlicher, and a highly placed engineer with Loewe-DWM at the time of the pistol's introduction. Luger's gun, in fact and in essence, was a redesign-compacted and streamlined-of the Borchardt pistol Loewe had introduced in 1893. The principal change was the elimination of the Borchardt's bulbous, ungainly recoil spring housing which extended out over the shooter's wrist, and the relocation of the spring to a position just behind the magazine, resulting in a weight saving of 10 ounces, a reduction of 5 inches in overall length (2¹/₂ inches was gained by simply shortening the barrel). And thus was an unmarketable ugly duck transformed into the all-time swan of handgun history.

Any Luger today is a collector's item of sorts, and many advanced collectors concentrate on Lugers to the exclusion of all other arms. Their hobby is far from confining, for they recognize fifty major variations, some of which command prices of \$2,000 per gun. Excluding most of this exotic trivia, we can trace the design development of the Luger through four basic models, those of 1900, 1906, 1908, and 1929.

The 1900 series, which comprises the 1900 model in .30 Lager caliber, and the ultrarare 1902 and 1904 models in 9mm, is distinguished by its flat, laminated two-piece recoil spring, which is of course invisible from the outside. This was a feeble arrangement, and in order to keep the breech shut in handling, a spring-loaded latch which snapped down over a hook projecting upward from the frame was inset into the right toggle knob. Both toggle knobs were characteristically dished out, and all guns of this series have grip safeties. Any Luger with the toggle lock and dished knobs is rare, and if it is in 9mm (and is original) it is worth large money.

In 1906 the flat recoil spring was replaced with a coil spring, the toggle latch was abandoned as unnecessary, and the knobs were no longer dished. Most 1906s are .30 caliber, and all have grip safeties.

By far the most common Luger is the P.08, which was the German army's contraction for their Pistole adopted in 1908. All P.08s are 9mm, and none have grip safeties. Most, if not all, have stock lugs.



The 1900 or „Old Model“ Luger is characterized by the dished toggle knobs, toggle lock, and laminated recoil spring. This was the model first adopted by the Swiss Army and, with a longer barrel, by the German Navy.



The 1906, or „New Model;“ uses a stronger coiled recoil spring, abandoned the toggle lock as unnecessary, and has checkered, round toggle knobs; it retained the grip safety. All later Lugers are modifications of the 1906, which was manufactured both in Germany and Switzerland.

The 1929 model was Swiss rather than German, and was a costcutting effort. The receiver ring is lathe turned rather than milled, the safety, toggle knobs, magazine latch, and takedown latch are smooth rather than knurled or checkered, and the frontstrap is straight rather than flared out at the bottom. Grips are plastic, the grip safety is unusually long, and the finish is rough. It is an instantly recognizable gun, nothing to look at, but rare in the United States.

Lugers were manufactured at one time or another by DWM, Mauser, and Krieghoff in Germany, while Simson supplied the postwar Reichswehr by assembling the guns from leftover parts. Waffenfabrik Bern in Switzerland manufactured 1906 and 1929 pattern guns for the Swiss army. And Vickers Ltd. in Britain, under rather mysterious circumstances, either manufactured or assembled Lugers for the Dutch military.



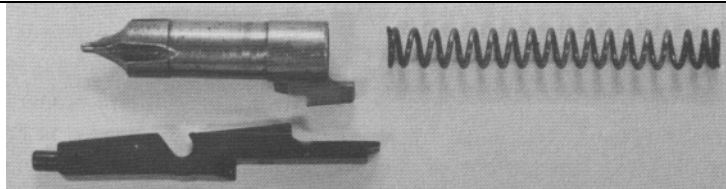
The most common Luger, the German Army P.08, subtracted the grip safety and added the stock lug. The original cartridge, far left, used a truncated conical bullet, but was soon replaced by round-nose rounds. A magazine-loading tool is shown at right—quite a blessing that; also gets the stock screws off.



The Artillery Model, adopted in 1914, was a P.08 „habille en carabine,“ furnished with barrel-mounted sights and a holster on a plank. The rig worked quite well actually, since the sights were far enough forward to give adequate eye relief when fired from the shoulder, which is not the case with most stocked pistols.



The Model 1929 is strictly Swiss, and still in service alongside the SP47/8 SIG. It is distinguished by its somewhat rough finish, straight frontstrap, long grip safety, and smooth (neither checkered nor knurled) toggle knobs, safety button, magazine latch, and takedown lever.



The Luger was striker-fired, and tightly enough machined to need flutes in the striker nose to bleed compressed air on its forward movement. The part alongside is the sear, which worked laterally in the left wall of the upper receiver. The disconnecter is the round spring-loaded plunger, which projects from the forward end of the sear.



Lugers are back in production again, as this rack of semimachined frames at the Mouser Works amply demonstrates. Note the straight frontstraps.

At least five books have been written about the Luger, not to count scores of scholarly articles. Much of its history remains wrapped in ambiguity, not to say outright mystery. An enigmatic, almost charismatic gun is the Luger, and its fascination is limitless.

WALTHER P-38

With the Nazi take-over of Germany, it became obvious that the Luger would have to be replaced as the regulation military sidearm. Difficult to manufacture even by 1900 standards, the Luger was fine for the skeleton Reichswehr of the Weimar Republic, but could not hope to keep pace with the rapid expansion of the Hitlerian war ma

chine. The change had to come, and Walther, still a relatively small plant in the deep shadows of the Thuringerwald, but brash and selfconfident as a result of the resounding success of the recently introduced PP and PPK, intended to be the winner in the exchange.

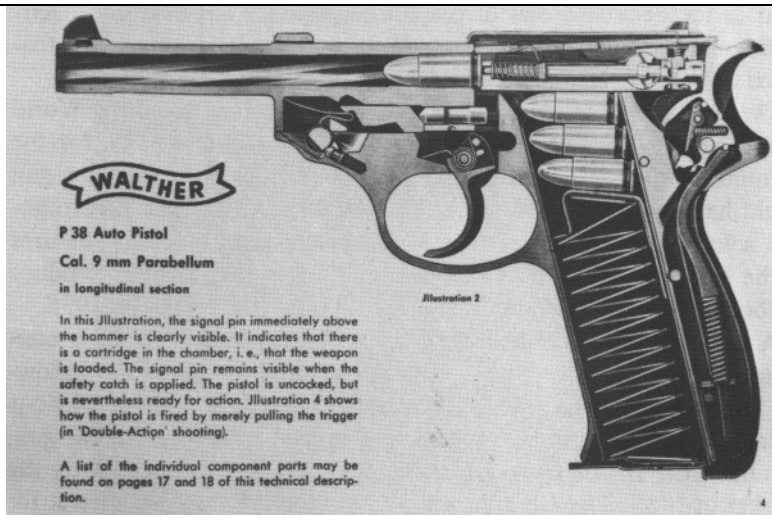
They had manufactured a blowback 9mm Parabellum during World War I, and around 1930 had made up a few oversized PPs for the high-intensity 9mm cartridge, but it was obvious that the new gun would have to be locked breech. Fritz Walther's aim then was to design a locked-breech pistol that would incorporate as many features of the highly praised PP as possible, and be as easy to mass-produce as the state of the art permitted. Development began about 1935.

A pilot-run pistol, called the AP or Armee Pistole, with a concealed, internal hammer, was produced in small numbers the following year. The design was subsequently altered, the most obvious change being the hammer, which was moved outside, and the gun, redubbed the HP or Heeres Pistole (Service Pistol) appeared on the market in 1937. The German army tested the HP, and adopted it for service the following year, to replace the Luger under the designation P-38. The Swedish army adopted it the year thereafter as the P-39, but only a small number were delivered before the war cut off exports.

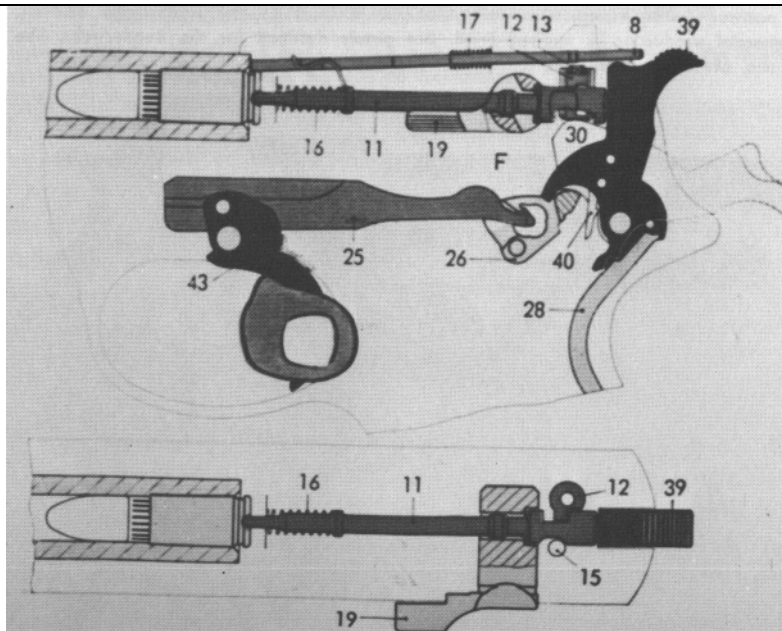
When Walther was unable to meet the wartime demand for P-38s, production was instituted at the Mauserwerke in Oberndorf am Neckar, and at Spreewerke GmbH, Berlin-Spandau. Very few commercially marked P-38s were manufactured before the German arms industry went on a code-name system. Walther-made P-38s were coded „480“ up to 1940 and „ac“ after 1940. Mauser-built guns were marked „byf“ up until 1945, and a few will be encountered marked „svw,“ the last code assigned to Mauser before war's end. Spreewerke production is marked „cyq.“



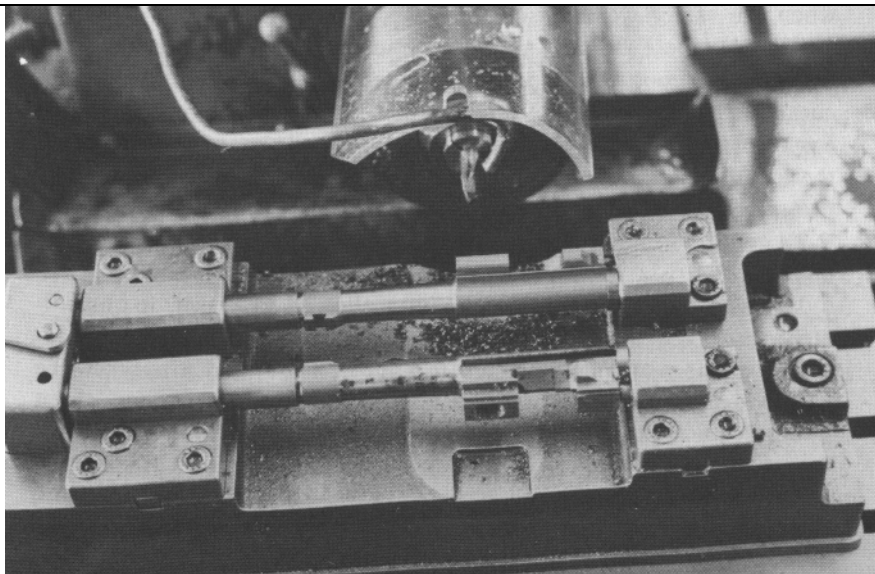
WALTHER P-38 The postwar Bundeswehr showed a not unreasonable affection for its old weapons. The Second World War MG42 was readopted as the MG1, while the P-38 became the P1. All postwar P-38s, except those made at Manurhin, carry the Ulm/Donau address. Commercial production is marked P-38, but pistols destined for the Bundeswehr, like this one, are marked P1.



Notice the pin housed in the barrel lug, parallel to and beneath the cartridge. After a short period of locked travel, the back of the pin will impact the frame upright, causing the nose of the pin to cam the locking block down into a recess in the floor of the frame just ahead of the trigger pivot, thereby drawing the wings of the locking piece out of their recesses in the walls of the slide, freeing the slide to travel on back alone.



The P-38 firing mechanism is not the simplest. Part 8 is the loaded chamber indicator; 12 is an internal safety block, housed in the slide, which works off the sear, and blocks the firing pin unless the trigger, or the manual safety, moves the sear fully forward. The P-38 is thus safe from discharge if dropped on the hammer spur.



Two P-38 barrels are locked side by side in a jig for milling the locking-block recess.



Wartime P-38s had steel frames, but all postwar production has come through in aluminum alloy. At top is a forging, and beneath it a fully machined frame.



Some P-38s shoot phenomenally well. This nearly one-hole, five-shot group was fired from a rest at twenty-five meters by one of the authors, not widely famed for his marksmanship. The gun is a P1 manufactured in April, 1964.

The P-38 locks up by means of a tipping block of unusual design. The block is housed in the underside of the barrel, and pivots at its front end. A wing on either side of the rear end of the block locks into a recess machined into either side of the slide. Thus, on firing, the barrel and slide recoil backward together for a short distance until the block is forced downward into a recess in the floor of the frame, halting the barrel and freeing the slide to recoil on back alone. It is quite a simple and effective system, but requires a slide thicker than the norm and carefully heat treated lest the slide eventually crack at the locking wing recesses.

The trigger-sear-hammer units and their relationships are essentially a scale-up of the PP. The PP's frame-mounted hammer-block safety is there, but is set farther forward and blocks the firing pin rather than the hammer itself. Also moved forward is the thumb safety, so that it merely prevents the firing pin from going forward when struck by the hammer (which is automatically tripped when the safety is applied), since the safety, in its new location, can no longer interpose

itself between the firing-pin head and the falling hammer. It is strongly recommended for P-38 users, that when the safety is depressed, the hammer be eased down with the thumb rather than being allowed to fall free. Some wartime specimens have shown up with fatigued safety tumblers which would crack and let the gun fire when the safety was applied.

All told, the P-38 was an eminent success. It was powerful, comfortable to shoot, and accurate-some indeed are remarkably accurate, and effortlessly deliver one-inch groups at 25 meters. It was easy handling, fast to get into action, and easily mass producible by the standards of the day. The first military pistol designed to make extensive use of stamped components and wire torsion springs, the P-38 could be built twice as fast as the Luger, on half as many machines.

When the postwar Bundeswehr was allowed to rearm, it immediately readopted the P-38 under the designation P-1. Production resumed at the new Walther plant in Ulm in 1957, and a parallel line was inaugurated at the Manurhin factory in Mulhouse, France, about 1968. Postwar production uses an aluminum-alloy frame which serves to reduce weight from 34 ounces to 27 ounces. The P-38 is currently in use as the standard or alternate standard sidearm in the German, Austrian, Swedish, Norwegian, and Portuguese armies.

Today there are better pistols than the P-38, but no P-38 fan is going to be persuaded to that view.

COLT M1911 „GOVERNMENT MODEL“

The big Colt is without question the most celebrated and honored of battle pistols, and one of the most controversial as well. Adopted in 1911 by the United States Army, it has been the regulation American service sidearm ever since, through big wars and small, despite unceasing objections that it is too bulky, too heavy, slow to get into action, overpowered, hard kicking, inaccurate, and unmasterable save by a dedicated few. Even its detractors, however, agree that the .45 is utterly reliable under any and all circumstances, and that its cartridge is a brutal manstopper. When the last chip is down, the .45, according to many, is the only handgun to have. Alvin York stopped a squad bayonet charge with his one shot on each man-and it is highly doubtful that a lesser caliber, or a lesser gun, would have sufficed. Sergeant York's gun was accurate enough, in his hands. Match target experience proves a tuned and tightened Government Model will shoot alongside any full-bore handgun made. Practical experience indicates that any issue 1911, granted a tolerable trigger, will deliver excellent combat accuracy. Many women shoot the .45 in competition and enjoy the recoil, so the objection that the 1911 kicks too hard to shoot well is more a commentary on military instruction methods than on the gun itself.

As for speed, no gun is faster than a cocked-and-locked .45 from a proper holster, and trained United States sentries can draw from a military flap holster, crank a round into the empty chamber, and get a semiaimed shot off in less than two seconds. The 1911 is well balanced and easy to manipulate, and questions as to its bulk and weight are entirely subjective. With a 5-inch barrel, its overall length is 8.6 inches and its weight, with empty magazine, is 39 ounces. Most police revolvers weigh around 35 ounces.

The Government Model traces its antecedents to the Colt Model of 1900, which looked like nothing so much as a blued steel carpenter's square. Designed by John Browning, the 1900 was a .38, as was the service revolver of the day. The .38 revolver cartridge, how

ever, had given a dismal account of itself in the Philippine Campaign of the year before, and its replacement in the field by obsolescent single-action .45s rushed from stateside storage was a good indication that the military would change guns as soon as possible after hostilities ceased, and hence that Colt's half-century stranglehold on government handgun contracts was in danger.

Browning's immediate reaction was to improve the 1900 model pistol, and to pep up the ballistics of the .38 ACP cartridge it fired. Thus appeared in their turn the 1902 and 1903 models. But Browning was not the man to limit his chances. The chance was that no .38 would prove acceptable, and thus appeared on the market in 1905 the Colt Military Model .45, only months behind the Thompson-LaGarde Committee report recommending that no pistol of less than .45 caliber be considered for military service. When the Frankford Arsenal was ordered to develop a .45 cartridge for automatic pistols, it merely increased the bullet weight of the Colt cartridge from 200 to 230 grains. By the time the army began tests in 1907, Colt had seven years of commercial experience with the basic Browning design, and the .45 version had been in circulation for the past two years. This was to serve them in fine stead.

When the also-rans had been weeded out, Colt, Savage, and Luger were left in the race, the latter two cagily awaiting a solid military contract before going to the expense of tooling up. Colt and Savage were asked to provide 200 guns and 100,000 cartridges for field tests. When

Savage could not meet the ante, their option was given to Luger, who also had to pass. Colt just chuckled and wheeled the guns out of the warehouse.

After the completion of the field tests, the government generously invited Savage to submit an improved gun to compete against the no-less-improved Colt in the final tests to take place on November 10, 1910. Six thousand rounds were fired through each gun. At the end of the course the Savage had had 43 stoppages and 13 broken parts. The Colt endured 12 stoppages and 4 broken parts, but came out with a cracked barrel which burst after an additional 500 rounds. The army was not satisfied.



COLT 1911 .45 AUTOMATIC

The Colt 1911 .45 has been the United States service pistol for sixty years, through two world wars, Korea, Vietnam, and a sackful of side-pocket imbroglios. It is a known quantity, and the consensus is that it is the finest battle pistol extant, its virtue residing largely in its cartridge. This is the A1 modification.



Left-side view of the 1911A1 shows its controls: well-placed sear-block thumb safety, slide stop operating off magazine follower after last shot, button-type magazine latch, backstrap grip safety.



Colt's 1902 Military in .38 ACP was a near predecessor of the 1911. It was squarish, pivoted the barrel at both ends, and laid out the controls differently. Browning was feeling his way.

Colt and Savage both hurried back to the drawing boards to prepare improved models for retesting in March of 1911. After six thousand rounds through each gun on this occasion, the Savage still chalked up about 40 stoppages and a number of parts breakages, but the sure hand of the master John Browning had been at work in Hartford. The Colt bulled through the destruction test with no stoppages whatever and no parts failures. The Model of 1911 was officially christened almost immediately.

Only five significant changes have been made in the Government Model's long life. In 1926 it picked up the A1 designation on the end of the 1911 label, as a result of field experience in the World War 1. The 1911A1 differs from the 1911 in that:

- (1) the tang of the grip safety was lengthened to eliminate „ham mer bite“ on fleshy hands
- (2) a concave depression was milled into either side of the frame just behind the trigger to allow a shorter reach for stubby fingers
- (3) the trigger was shortened, with the same view in mind, and striated or checkered to allow better control
- (4) the mainspring housing (that portion of the backstrap just beneath the grip safety) was arched or made convex (it was dead flat on the 1911) in order to force the muzzle upward when gripped, thus countering at least partially its tendency to shoot low in instinctive pointing. The housing was striated to prevent the gun from slipping or twisting in the hand
- (5) the sights were made larger and squarer, thus greatly improving the sight picture
- (6) bore diameter was decreased slightly, and the grooves were cut deeper, better to grip the bullet.

These changes took place at about serial number 650,000 in the military series, and at about C130,000 in the commercial series, delivery of the improved model beginning in 1925, prior to the formalization of the new nomenclature.

In January, 1951, in response to postwar bellyaching that the sidearm was too portly, Colt introduced the Commander model, with a burr-type hammer, an aluminum-alloy frame, a barrel shortened to 4¹/₄ inches, and the slide abbreviated to match. This shortened the overall length by an inch, and pared the weight by a startling 12¹/₂ ounces to a 26¹/₂-ounce empty weight—just 5¹/₂ ounces heavier than the Detective Special snub. The United States Army, which had inspired and encouraged the engineering of which the Commander was the issue, suddenly disclaimed all interest, leaving Colt to turn to the civil market to recoup their expenses. And doubtless they did, for the gun has been enthusiastically received, offering as it does the reliability and crushing power of the .45 in an easily portable package. Recoil is pronounced, but not uncomfortable. In the eyes of many, the Commander is the supreme concealment gun. Magazine capacity, like that of the Government Model, is 7 rounds in .45 and 9 rounds in .38 Super. The Commander is additionally offered in 9mm Parabellum with a 9-round magazine. In 1971 a steel-frame version of this gun was introduced under the somewhat flamboyant designation, „Combat Commander.“

Serious match competition with the .45 had always required extensive and expensive reworking at the bench of a master pistolsmith such as Giles, Shockey, Clark, Chow, Dinan, or Pachmayr. The target market, while not large, was bedrock dependable, and Colt decided to avail themselves of a larger share of it by introducing, in September, 1957, their Gold Cup National Match model, a target-sighted, tight-fitted .45 with an adjustable trigger, enlarged ejection port, a flat 1911-style mainspring housing, and said to be ready for masterclass competition fresh out of the box.

In December of 1960, the Gold Cup was offered in .38 Special wadcutter caliber for centerfire match competition. Owing to the feebleness of the cartridge, the gun was blowback operated with a fixed barrel rather than locked breech as are the .45s, Super .38s, and 9mm. A superb target gun, the .38 Gold Cup is entirely worthless for any other task.

In 1970 an improved barrel and bushing unit consisting of a barrel with an increased outside diameter at the muzzle and a bushing with four spring fingers that bear firmly on this surface, one at each quadrant, when the gun is in battery, was introduced on the Government Model, which was rechristened the Mark IV for the occasion. The unit is claimed to improve accuracy appreciably. The new bushing has also become standard on the Gold Cup, but cannot be used on the Commander, since the length of the bushing would interfere with the recoil stroke of the short slide.

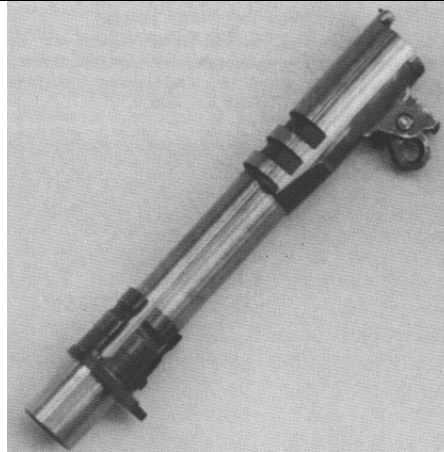
As this recent proliferation of variations and improvements would indicate, today, after an unprecedented sixty years as the regulation military sidearm, the prestige and popularity of the Colt Government Model among American shooters is greater than ever before. Even the long-standing prejudice of American police against any and all semiautomatic pistols is crumbling in the face of the growing conviction that the 1911 is the world's finest combat handgun. There are certainly, by now, cheaper ways to build pistols. Mechanically the 1911 is somewhat archaic; it lacks some desirable features which other guns incorporate. But a half-century of virtually unceasing battle has proved its reliability, and no other gun, save copies of the Colt, has its cartridge.



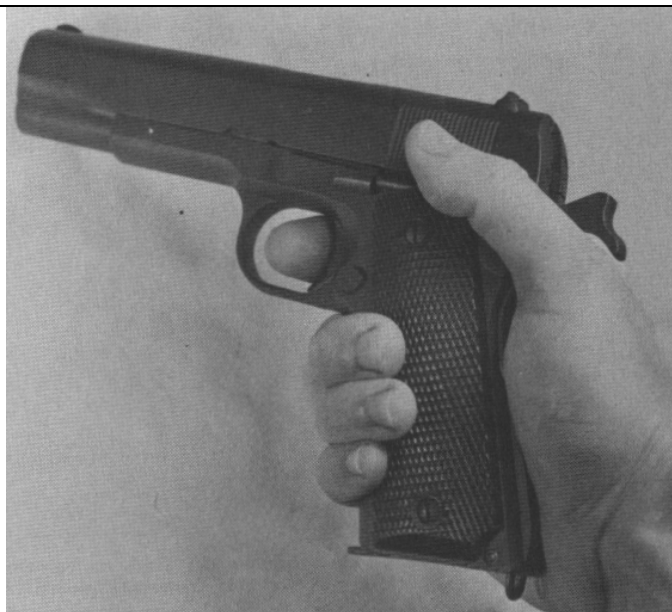
The Combat Commander has a steel frame, burr hammer, either arched or flat mainspring housing, and usually comes in a sandblast nickel finish. Dimensions are the same as for the aluminum frame Commander, which makes more sense.



The Commercial Mk IV, which replaces the Government Model in Colt's catalog, advertises itself with a garish slide inscription. It is said to offer substantially improved accuracy with equal reliability.



The secret of the Mk IV's heralded accuracy is a new bushing with four spring fingers engaging an enlarged diameter muzzle when the gun is in battery. It seems to make good sense. The pivoting link unlocking system is an anachronism, however.



Aficionados of the .45 usually fire with the thumb riding the safety lever and sometimes thereby miss the grip safety which, many feel, is as well done without anyway.

BROWNING P-35 „HIGH POWER“

The big Browning is a gun of many names. The Anglo-Americans and the Germans call it the HP („high power“ and Hochleistungspistole respectively) while the French and Belgians refer to it as the GP, for pistolet de grande puissance—all of which means „high-power pistol“ in whatever language. To simplify matters, it is frequently called the P-35 after the date of its introduction by the FN plant in Belgium. Since it is chambered for the 9mm Parabellum, it is of course no more powerful, shot for shot, than any other 9mm. What it does offer more of, though, is firepower, and this by virtue of its 13-round, double-column magazine. Early prototypes tested by the French army, who instigated the whole project but never adopted the gun, carried, we are told, a 15-round magazine, but capacity was reduced when the gun went into production in order to shorten the height of the grip.

The P-35 was John Browning's last gun. He produced the first prototypes within the space of a few months in 1923, filed for United States patents on June 28 of that year which were granted on February 22, 1927, just a few months after death overtook him in his office at the Fabrique Nationale in Liege, Belgium.

The High Power was obviously, in Browning's mind, a large improvement over the United States service pistol he had designed more than a decade earlier. Magazine capacity, for starters, was almost doubled. The P-35 has no grip safety, and modern aficionados of the 1911, who often tape down the .45's grip safety or weld it shut, obviously concur with Browning in this respect.

The operational principle and the lockup in the two guns are essentially identical. Two ribs on the top of the barrel ahead of the chamber lock into recesses in the roof of the slide. After a short period of locked travel, the rear end of the barrel was swung down into the frame, releasing the slide to continue back alone. The means of achieving this, however, was quite different in the two guns. The barrel of the 1911 rides a primitive swinging link, the upper end of which is pinned to the barrel while the lower end is pinned to the frame. The P-35, on the other hand, uses opposing cam faces on the barrel and frame to lock and unlock.

The barrel-slide bushing was another significant change. On the



BROWNING 1935 „HIGH POWER“

Current commercial GP is well built and businesslike. Controls are laid out similar to the 1911, save that the grip safety is dispensed with and the thumb safety is poorly shaped. The trigger, though it has the air of a double-action, is single-action and famed for a gritty let-off, though a good gunsmith can help it.

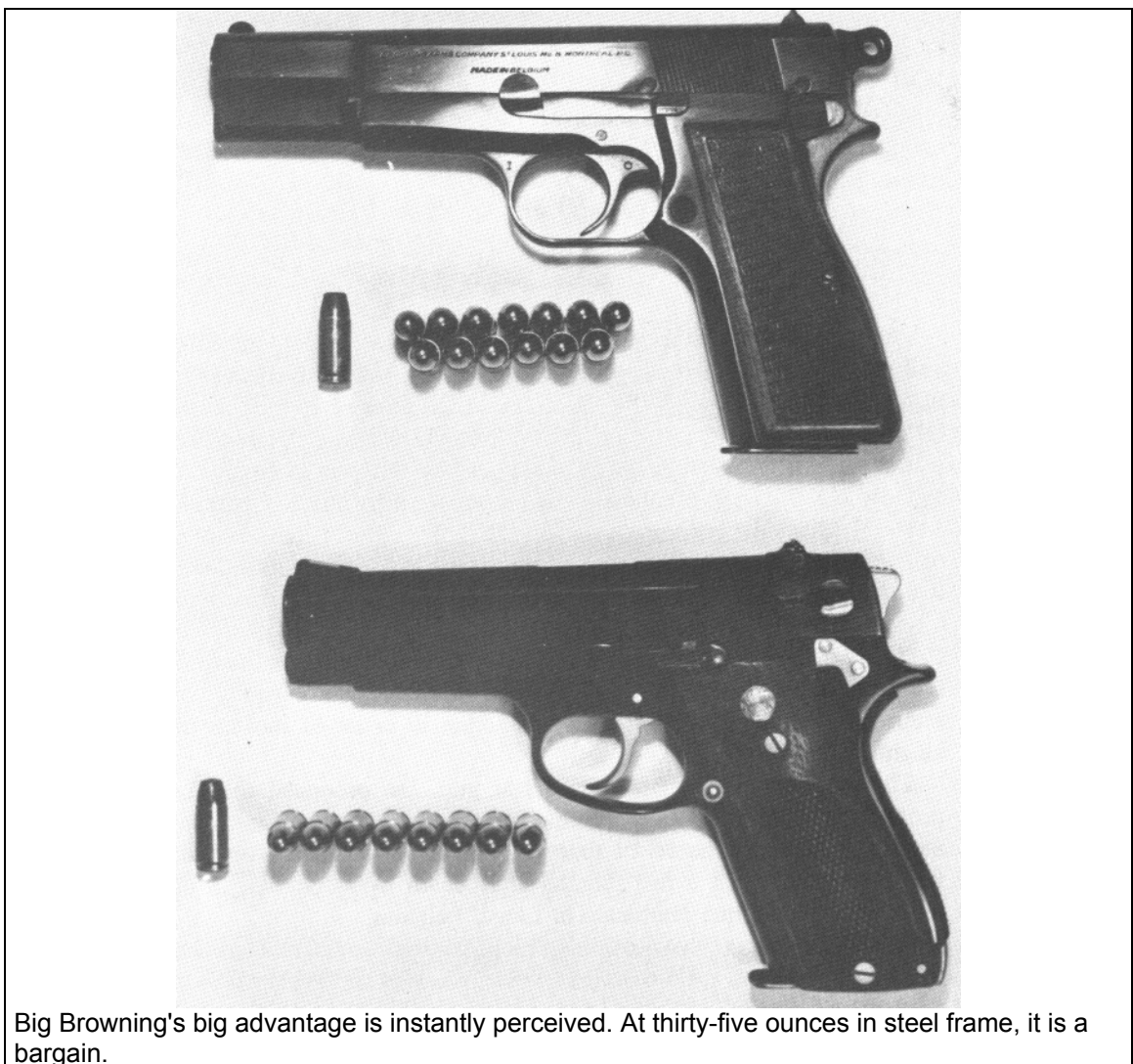
P-35 the bushing is integral with the nose of the slide, and the barrel simply lifts out on dismounting, whereas the 1911 used a separate bushing and retaining plug, all of which had to be disassembled to free the barrel.

Only the searage was a step backward for the P-35. The 1911 routes trigger pressure around both sides of the magazine straight back to the sear—a fairly clean operation. Browning felt that a similar arrangement on the P-35 would add too much width to an already girthsome grip. Hence he directed trigger pressure up to a pivot piece in the slide, across the top of the magazine well, and down again to the sear, which was quite ingenious, but unfortunately this

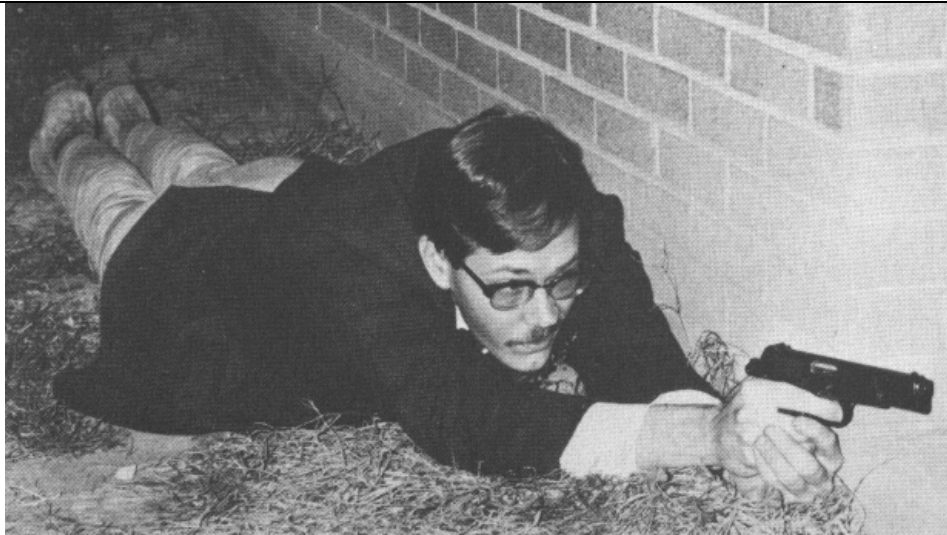
sequence of rounding four or five corners makes a crisp trigger pull all but impossible to come by. The addition of a magazine safety, which works off the trigger and grinds against the front face of the magazine each time the trigger is pressed, entailed a further deterioration in the quality of the pull.

The P-35 was adopted by the Belgian army almost immediately after its introduction. In the five years remaining before Belgium fell to the Germans, it was adopted by China, Romania, Denmark, Lithuania, the Belgian Congo, Ethiopia, Holland, Indonesia, Paraguay, El Salvador, Syria, Siam, and Venezuela. In 1940 FN was placed under the management of DWM, and under the designation Pistole 640 (B), the High Power became the substitute standard German service pistol. About 200,000 guns were said to have been produced under German supervision during the war.

In the meantime FN's management and engineers had fled to Britain, whence most of them were sent to Canada to put the P-35 in production at the John Inglis plant at Toronto. The first run of Inglis-built P-35s went to Chiang Kai-shek's Nationalist Chinese government. With the completion of the Chinese contract, Inglis's production was rerouted to arm the Greek, Australian, Canadian, and British forces. Total war production at Inglis matched that at FN about 200,000 guns.



Big Browning's big advantage is instantly perceived. At thirty-five ounces in steel frame, it is a bargain.



GP's generous magazine capacity makes it a top choice for night combat. Its dismal sights leave much to be desired in daylight.

Today the P-35 is the most widely used military handgun in the world, being the standard sidearm for all the nations of the British Commonwealth, most of NATO, and scores of uncommitted nations the world over. As a serious combat handgun it is the Colt Government Model's foremost rival. At 32 ounces, its weight is quite moderate. Its grip is comfortable, and well-shaped-ideal for all but the smallest hands. And fully loaded, with 13 rounds in the magazine and one in the chamber, its firepower is high, hoch, or grande, as you prefer.

THE PETTER PISTOLS

Little is known of Charles Gabriel Petter, of his life, of the motivation or compulsion that led him to design the remarkable pistols which have been adopted by four European governments and used by countless now-independent fragments of the former French Empire. The guns, indeed, are well known and widely admired, but the man behind them remains clouded in mystery.

Petter, I have been told by people who had met him, was Swiss by birth, and as a young man served a hitch in the Swiss army as a training officer. Shortly after leaving the army he emigrated to Belgium and found employment, probably as an engineer, in the coalmining industry. When the Germans invaded Belgium in 1914, Petter

is said to have fled to France, joined the Foreign Legion, and to have been demobilized after being wounded in the stomach.

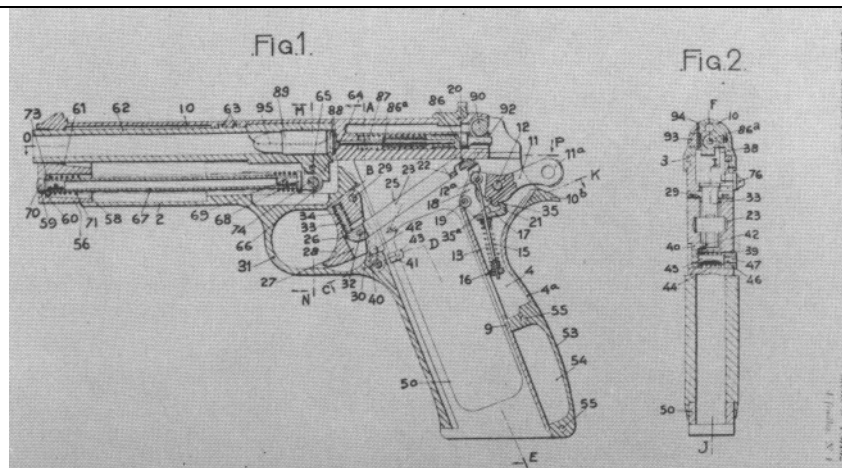
Sometime after the war he took employment with the Société Alsacienne de Constructions Mécaniques (SACM), at Cholet, Alsace, and became director of their weapons division. He is said later to have returned to Switzerland to spend the last years of his life in the region of Montreux on Lake Geneva. And this, in sum, is all we know of Monsieur Petter, and considerably more than can be proved.

France's army came out of the Great War with her logistics incredibly asnarl. The handgun situation was typical of the whole. The Mle 1892 revolver, several hundred thousand of which had been built, was the regulation sidearm, though the Mle 1873 had been widely used as well. But these were hardly sufficient to fight a handgun war on a scale never seen before, and to take up the slack hundreds of thousands of pistols (.32 ACPs for the most part) and revolvers (ersatz S & Ws chambered for the 8mm Mle 1892 round) had been imported from Spain. The Mle 1892, being a revolver, was by definition obsolete according to Continental thinking, and the Spanish .32s, though for the most part good guns of their type, were not by any means ideal. By 1923 French Ordnance was audibly desirous of a new service sidearm.

A request was evidently passed from the French to John Browning for a 9mm Parabellum with a large-capacity magazine for test purposes, and he, within the space of a few months, had built the first prototypes of what later was to become the P-35 High Power, and forwarded them to France. The army toyed with them for a while, then returned them with a highly complimentary letter. Too bulky for their taste, most likely.

By 1928 the National Armory at Saint-Etienne had built a prototype blowback pistol, and continued to modify it through 1932 without having made it acceptable. By 1935 the French had tested, either all at once in that year, or more likely one by one over the haul, a total of 22

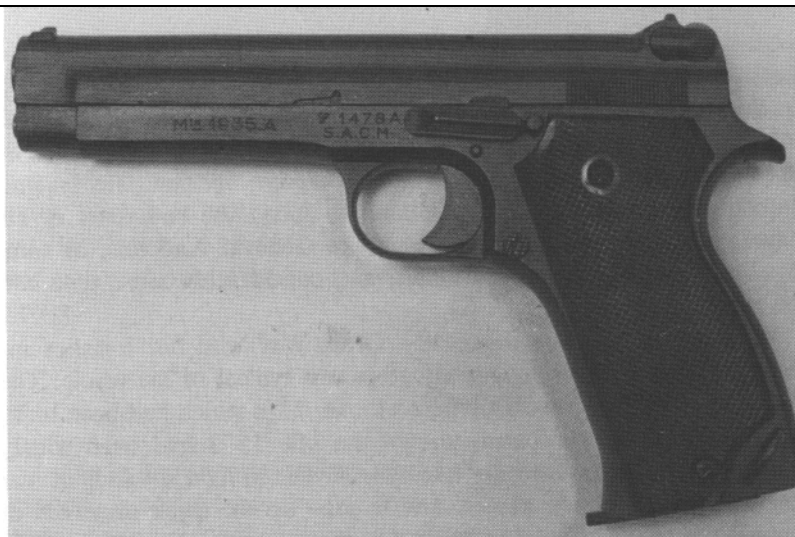
various pistols, both European and American. The one that really grabbed them was Petter's, submitted by SACM. It was adopted as the Modèle 1935A, and the first ones probably went into service late in 1936 or early in 1937.



THE PETTER PISTOLS

Petter's patent drawings illustrate the M1935A with absolute fidelity, indicating he must have made a number of prototypes before filing for patents.

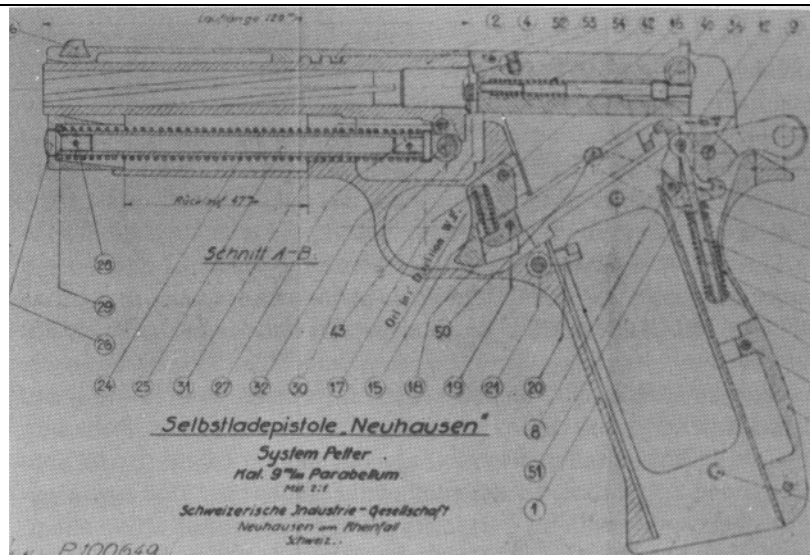
Petter's French patent was granted on March 9, 1934, and SACM had obviously built working models, a whole series probably, prior to application, for the patents describe the gun meticulously. The only original points which the Petter patents claim, however, are the detachable firing unit composed of the hammer, sear, and mainspring in a compact housing, the unit being held into the frame by the slide, the housing forming a portion of the frame railing on which the slide travels. These exact same features, however, had already appeared on the Tokarev pistol, adopted by the Russian army four years previously, in 1930. Though Petter had put a great deal of work and talent into the development of a fine handgun, his only patentable feature was in all likelihood consciously stolen.



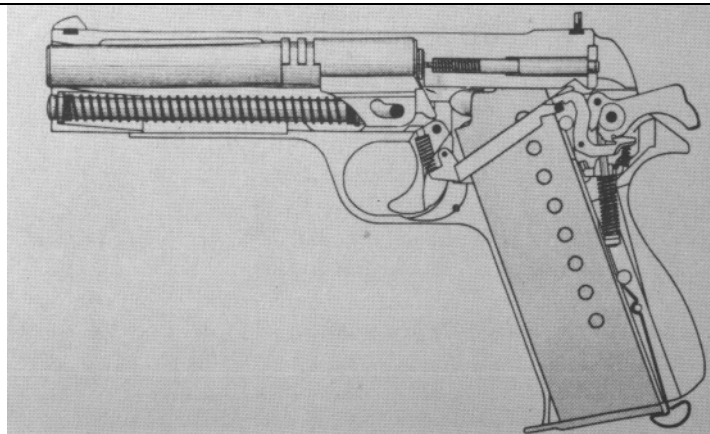
The 1935A was a sophisticated design, well built, and it was as easy to handle as it was good looking. It suffered from an ill-positioned safety, a pipsqueak cartridge, and usually from poorly manufactured ammunition as well.



The 1935S was a homely, slab-sided build-'em-quick model, with much the same faults as the 35A. But the closer one looks, the cleverer it appears as a design.



Swiss drawing of an early SIG prototype shows the gun scaled up to 9mm Parabellum, the rear sight milled integral with the slide, and a loaded chamber indicator added. But otherwise it is the 1935A.



Current SIG drawing shows, among other differences, a separate sear spring, safety moved out of the slide, heel of butt magazine latch, and cam rather than link unlocking. Note that the breech of the barrel locks up well above horizontal, wedging the nose of the barrel tightly into the front of the slide. So did the PA35 and the Tokarev.

In 1937 SACM licensed SIG in Switzerland to manufacture under the Petter patents, and in 1938 SIG negotiated the rights to market their pistols in all countries except France. It would seem, however, that SIG did not seriously begin work on their end until 1942 when the Swiss army asked both SIG and the Federal Armory at Bern to undertake development of competing pistols, one of which would replace the Luger as the Swiss service sidearm. The project proceeded at a leisurely pace, since the energies of both installations were, at the time, focused on war production, until 1948 when the SIGPetter design was adopted as the SP47/8, signifying „Self-loading Pistol M1947 with 8-round magazine.“

The 1935A had been in production at SACM in France for only three years when it became obvious that another war with Germany was inevitable.

French officers liked the '35A—it was light, handy, compact, nice looking, and easy to shoot—but they did not fancy going off to battle again with '73s, '92s, and the Spanish conglomeration. Something had to be done to speed up handgun production. Saint-Etienne arsenal redesigned the '35 for mass production, and the new model, dubbed 1935S, was thrown into manufacture there, at SACM, and at the Tulle and Châtelleraul arsenals.

The 1935S is shorter and smaller than the '35A, but heavier and lamentably homely. The '35A was a series of sensuous, undulating curves which lightened the gun and gave it its nice looks and comfortable, easy-pointing grip at the same time. The '35S, on the other hand, is all straight lines and slab sides. Less metal was removed, and it was a much easier gun to produce. Whereas the 1935A locked up in Colt fashion, seating two rib lugs on the top of the barrel into corresponding mortises in the roof of the slide, the '35S very sagaciously dispensed with all this, locking a shoulder ahead of the chamber against the front edge of the ejection port. The 1935S was just hitting stride when the Panzer divisions rolled across France. It remained in production, at least in those installations controlled by the Germans, and was issued as substitute standard to the German army.

As far as logistics went, the French came out of World War II in a more colossal mess than they had been in at the end of the World War I. They were armed with a little bit of everything, and French manuals of the postwar era read like a small-arms anthology.

Such a situation would have been tolerable, were peace to be peace, but France was fated for another fifteen years of war, first in Indochina and then in Algeria. Something had to be done. As a stopgap the M1935S was put back into production, but it was becoming clear that as a military sidearm it lacked a great deal.

Primarily stopping power. Its cartridge, almost identical to the U.S. Pederson device cartridge of the fading days of World War I, launched a light, 87-grain .30 caliber projectile at a bit over 1,100 feet per second, which was plenty of velocity but meager of punch. The same cartridge was used in submachine guns, and the obvious course was to up both weapons to 9mm Parabellum.

MAS had a new prototype 9mm ready by 1948, and after several improvements it was adopted as the Mle 1950. The 1950 is a scaled-up Petter, which was both an easy and an intelligent move. It retains the safety and external slide configuration of the 1935S, but returns to the original twin-lug lockup. The grip is the nicely curved, comfortable, easy-pointing handle of the 1935A, lengthened to accommodate a 9-round magazine.

The Mle 1950 is a first-class battle pistol. It has seen extensive combat on two continents, and is well liked by the men who use it.

The Swiss meanwhile were proceeding in their usual fastidious fashion. They dispensed with the reprehensible slide-mounted Petter safety soon along, and after some experimentation arrived at their current frame-mounted lever which barely misses being the finest autopistol safety ever designed.

The barrel links (there were a pair of them) impressed the Swiss as a generically sloppy arrangement, which they were, and they were next to go. In their place SIG (Schweizerische Industrie Gesellschaft) fitted a cam ramp on the barrel lug which rode a transverse pin to lockup. The most startling change, however, was in the railing. The French Petters, like most Browning-type pistols, have the slide envelop the railed portion of the frame. SIG turned this convention inside out by having the slide ride inside the top of the frame. The result, given a longer than usual frame, was to double the normal distance of slide-frame engagement.

The SIG -pistol, as an example of fine design and precision manufacture, excites the admiration of anyone who has the chance to handle and shoot it. To boot, it is incredibly accurate, and almost indestructible. Long after other pistols have shot loose, the SIG just gets smoother and smoother. Following its adoption by Switzerland, the SP47/8 was adopted by the Danish army and by the West German Border Police.

The SIG-Petter is, with little doubt, the finest automatic pistol ever made. It is also the most expensive to manufacture, and for this one reason, unfortunately, its days are numbered.



Current SIG is probably the world's finest service pistol, also the most expensive to build. Its machining, fit, accuracy, and trigger pull are legendary.



Model 1950, the current French service pistol for armed forces and national police, has the butt lengthened for nine rounds of 9mm Parabellum, and has borrowed the 1935S's reprehensible safety; otherwise it is much like the 1935A, and a very fine weapon that saw heavy use in Algeria.



Unlocked SIG cutaway shows the cam slot in the barrel lug riding the cross pin. Note the length of straight line locked recoil allowed (length of the slot flat minus pin diameter), which is easily variable on the drawing board, and quite unattainable with a link system.

BERETTA MODELS 1934 AND 1951

The Beretta M1934 ranks perhaps third in the esteem of Continental filmmakers, close behind the Luger and the C-96. Like these it has both looks and personality. The looks are rugged and handsome and the personality is steady, reliable, dependable. To this extent the film image is remarkably correct, and the reliability of the 1934 derives from both the excellence of its design and the quality of its construction.

The firm of Pietro Beretta was founded centuries ago in the ancient center of Italian arms production, Gardone Val Trompia, in the mountains above Brescia in northern Italy. The date usually given for the company's founding is 1680, but there is evidence that the Beretta family had been Gardonese armsmakers for generations before. Today Beretta is one of the world's largest manufacturers of small arms, and enjoys an unsurpassed reputation for good quality, excellent design, and reasonable prices.



BERETTA MODELS 1934 AND 1951

The Beretta 1934 is rugged, straightforward, and reliable. It is best thumb-cocked since the thumb safety, here set at „Fire,“ is not manipulable in a hurry. This specimen, made late in the war, still shows very acceptable workmanship.

The 1934 pistol evolved from the first Beretta self-loader, the Model of 1915, which had been limited standard in the Italian military during World War I. Like all Beretta semiautos for nearly half a century, these were conceived by Tullio Marengoni, one of the greatest gun designers of all time. Marengoni's designs, while often repetitive and tending to various comfortable ruts, were invariably noted for brilliant simplicity.

The 1934 is a medium-frame, blowback-operated pistol chambered for the .380 auto cartridge. (The same gun in .32 ACP is usually referred to as the Model 1935.) It differs from its immediate predecessor, the Italian navy issue Model 1931, in that whereas the backstrap of that gun was very straight and abrupt, causing the pistol to point low, that on the Model 1934 is curved in the fashion of the 1911A1. The 1934 barrel is open, in typical Beretta styling, the slide extending parallel to it on either side ahead of the breechface, and finally looping over the barrel at the muzzle to support the front sight.

The slide, indeed, could not cover the barrel in Browning fashion, for the roof of the slide then would block the barrel, which must tilt up sharply from the rear to disassemble. The lug on the barrel, beneath the chamber, keys into the frame above the trigger and ahead of the magazine well. The transverse shaft of the safety engages a half-round indent on the underside of the barrel lug to block the barrel in place. To disassemble, the magazine is removed, the slide is drawn fully back, and the safety is rotated around to engage a notch in the lower edge of the slide, blocking it fully rearward.

The safety, obviously, can assume this extreme position only by virtue of the slide notch's permitting it to, and in this position the safety shaft presents a flat face upward, thus freeing the barrel. Slapping the palm of the hand against the muzzle shoves the tail of the barrel out into

the magazine well, whence a deft finger can snare it and lift it up out of the frame. Depressing the safety lever now frees the slide to be run forward off the frame.

Jolly clever having the safety do all these things. From the manufacturing standpoint it is all to the good, eliminates a few parts, and yields a robust product. From the user's point of view the safety makes a marvelous slide stop and takedown lever, but is entirely worthless as a safety. It is set too far forward, and describes a 180° arc between „safe“ and „fire“ positions, most of which travel is out of

reach of the thumb. Practically speaking, engaging or disengaging it with the gun hand is out of the question. Much better to think of the M1934 as a simple, straightforward, single-action, easy-cocking, external-hammer, inertial-firing-pin pocket or belt pistol. As such it makes a great deal of sense. The gun may be safely carried with the hammer fully down on a loaded chamber, and is handily thumbcocked as the muzzle lines up, with but minimal loss of time.

Viewed this way the 1934 has a lot going for it. The searage-trigger, trigger bar, sear, hammer, disconnector, and their interrelationship-is reasonably straightforward, though not famous for a velvet let-off. Whatever mechanical criticisms can be made are small ones. The grips-plastic on a sheet-metal baseplate-do not even break, or at least none have been known to in service.

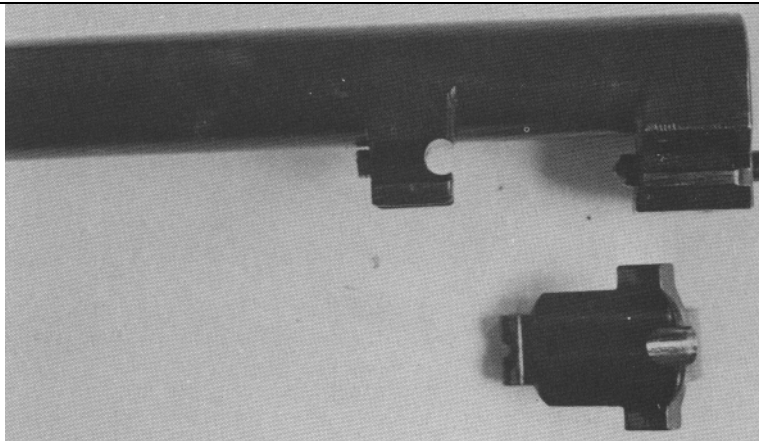
Only two things keep the 1934 from being perhaps the best allaround .380 auto ever introduced. The first is its mediocre level of accuracy-4 inches at 25 meters is about all it wants to do with service ammo, this due to the ammo, the creepy trigger, and the rather loose barrel-frame union. The second is the fact that the wrench kicks. The web of the hand takes a brutal blow with each shot, making the 1934 an extremely unpleasant gun to shoot. The pain, however, could easily be assuaged with custom stocks; a worked-over trigger and, selected loads might do wonders for the accuracy. Given comfort and 1¹/₂-inch groups, a better gun of its type could hardly be desired.



Locking the 1934's slide back frees the barrel to be fished up and out through the magazine well and vented slide roof. Depressing the safety then lets the slide run forward off the frame.



Model 1951 is the standard side arm in Italy, Egypt, and Israel, handles well, and must evidently be reliable in sandy climates. Crossbolt safety was replaced in 1969 by a 7911 type lever.



Model 1951 uses P-38-type locking block and unlocking cam, which locks wings of barrel-mounted block into recesses in inside of slide walls.

The 1934 was adopted in that year by Mussolini's military, and saw action shortly thereafter during the Ethiopian campaign of 1935-36. During 1936-38 it saw constant battle in the hands of Italian contingents supporting Franco in the Spanish Civil War. Its record in World War II was far better than that of its users, and it remained the standard Italian service pistol until 1951. It is now considered substitute standard by the Italian armed forces, but is still the issue sidearm for police and carabinieri, and likely will be for years to come. It is still in production and enjoys wide popularity.

About 1950 it became obvious to the Italian army that while their service sidearm might be one of the world's finest pocket pistols, it was a pocket pistol nevertheless. Something of more serious calibration was needed for military operations. This aside, the 9mm Parabellum offered considerable advantages, since its adoption would achieve standardization with Italy's NATO allies, and would offer ammunition interchangeability between the pistol and the submachine gun, which at that time was the basic arm of the Italian infantry.

In Beretta's high-Renaissance headquarters at Gardone, old Marengoni besat himself to design his first locked-breech handgun. The result was the Model 1951, which the army found much to its liking.

The 1951 contains an improved, more direct 1934-type searage, and dismounts the slide and barrel forward off the frame as a unit after the slide has been retracted far enough to permit rotation of the takedown lever on the right side of the frame. The slide remains open after the last shot, and a slide release lever is mounted on the left of the frame. The magazine release and the safety are both crossbolts located at the bottom and the top, respectively, of the left grip

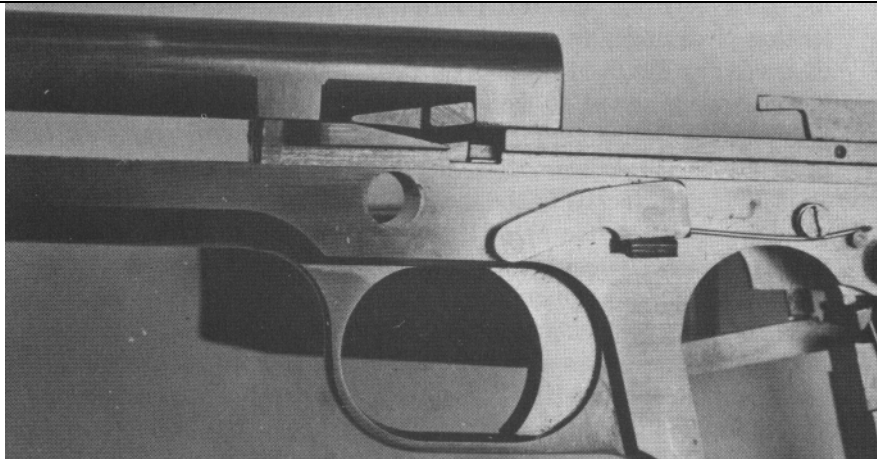
panel. The gun retains the magazine beak and the open barrel of the 1934 for purely stylistic reasons, but incorporates a P-38-type winged locking piece under the barrel, which engages recesses in either side of the slide. The P-38 lockup offers the advantages of straight-line barrel movement and an easily variable length of locked travel. The disadvantage is that it transmits stresses which the narrow slide of the 1951 can ill accommodate. Some cases are known in which the P-38 slide has cracked at the locking recesses in service, and though I am not aware of the M1951's having done so, it is reasonable to assume that the Italian gun is vulnerable to the same affliction as the German; if indeed not more so.

If so, this should certainly have come to light during the brutal and extended test sessions which precede the adoption of any military small arm. Yet the M1951 has been the standard sidearm in the Italian armed forces for almost twenty years now. Understandable, perhaps, in its country of origin. But this assumption of chauvinism on the part of the Italians overlooks a unique and overwhelming tribute to the gun's excellence. And that is that shortly after its introduction it was adopted by both Israel and Egypt, and as the standard sidearm of each of these bellicose factions, has been at war almost constantly ever since.

The 1951 is a joy to shoot. It handles well, is rather small and quite light (30 ounces with steel frame, 25 ounces with aluminum). Recoil is obviously there, but is not at all uncomfortable. And accuracy is gratifying, with the gun grouping five shots easily within 2 inches at 25 meters. Late in 1969 the crossbolt safety was eliminated in favor of a conveniently located 1911-type thumb lever, thereby obviating the one objection to the gun's handling qualities. Because of the gun's self-evident excellence, and because of its extensive use in the protracted Middle East conflict, the Beretta Model 1951 must be considered one of the world's foremost current combat handguns.



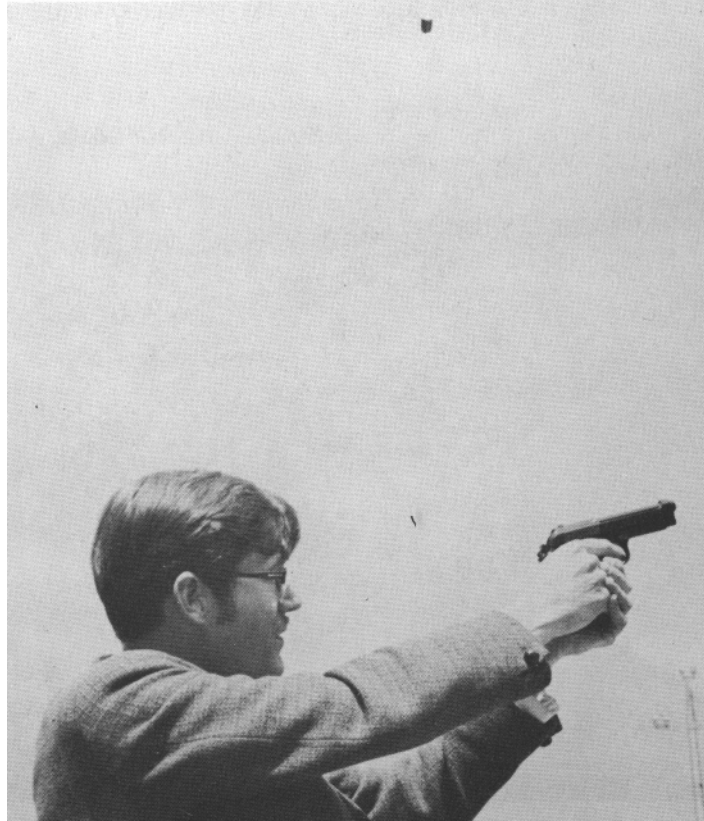
Cutaway 1951 shows locking-block wing engaging slide recess, like P-38; typical Beretta straight-line searage and disconnector; and recoil spring under the barrel, unlike P-38.



1951 barrel mounted on frame shows locking block in up (locked) position, and frame recess into which it will fall to release slide. Note ejector pinned to frame.



First group fired from 1951 by co-author Stevenson planted five rounds in 1N inches at twenty-five meters-highly respectable for a military pistol.



1951 pitches an empty case skyward as shooter engages a target high on an adjacent hillside.

WALTHER PP AND PPK MODELS

The famed Walther PP is often referred to as the world's first double-action semiauto pistol. In fact a dozen or more guns meeting this description antedated it, some by almost three decades, and some of these enjoyed comfortable commercial success. But the Walther is the one that made it big, that put the double-action self-feeder on the map, and finally blocked the path to profits for manufacturers who would not face up and compete.

Introduced in 1929, the PP's popularity is still growing each year, with no plateau in sight. It is the standard sidearm for virtually all German police, and for the law-enforcement agencies of many other countries as well. French police officers often purchase it privately in preference to their homegrown issue weapons, and no other foreign-built handgun has ever approached the popularity of the PPK

with American plainclothesmen. Scotland Yard's Special Branch swears by the PP, and author Ian Fleming went to great length in describing the arming of fictional British secret agent James Bond with a PPK.

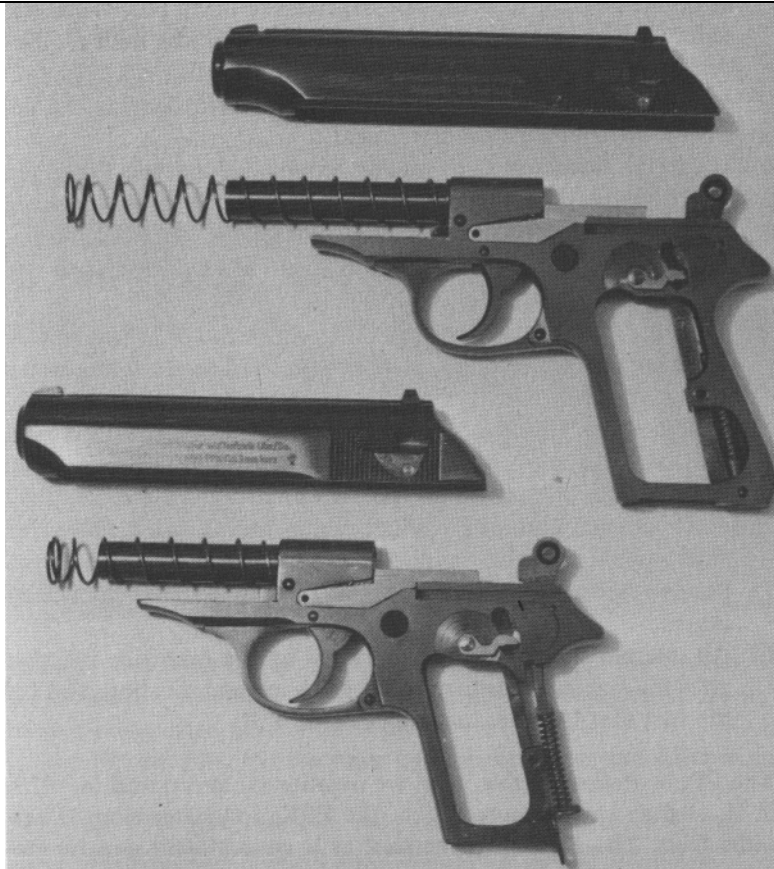
The PP, or Polizei Pistole, was designed by Fritz Walther, then head of the firm of Carl Walther Waffenfabrik, founded in 1886, which bore his father's name. The PP was the tenth Walther pistol, and was a melange of the best features of the previous nine along with other features, some borrowed from other brands, some quite original. Today, forty years later, the PP and PPK stand as the ideal unlocked-breech pocket automatics, the apogee of their type, such a dense agglomeration of excellent design features that few researchers try to trace them to their source. The features which we tend to think of today as „originating“ with the Walther PP are the following:

- (1) barrel rigidly and permanently mounted into an upright portion of the frame, and serving as a guide rod both for the largediameter recoil spring which surrounds it, and for the front portion of the slide.
- (2) takedown by removing a block from the floor of the frame which limits rearward travel of the slide when in position, pulling the slide fully back to override the block, lifting the tail of the slide clear of the frame and pushing it forward off the gun so that the breechblock passes above the barrel. The PP and PPK use the upper front portion of the hinged, springloaded trigger guard as the takedown block, but previous Walther pistols and many PP copies of various brands and nationalities mount the block differently.

- (3) thumb safety mounted on the slide consisting of a lever attached to a transverse cylinder or drum, the midpoint of which is bored through to permit passage of the firing pin. When the safety is engaged, the cylinder rotates slightly less than a quarter revolution, and performs three operations:
 - (a) it engages a lug on the firing-pin shaft, denying the firing pin forward movement.
 - (b) its lower surface moves around behind the firing pin interposing itself in effect a wall of steel between the head of the firing pin and the face of the hammer.
 - (c) it depresses a lever, which trips the sear and causes the hammer, if cocked, to fall.
- (4) frame-mounted safety bar, working off the sear, which blocks the hammer from making contact with the firing pin unless the trigger is pulled fully to the rear.
- (5) double-action trigger and outside hammer, interconnected by a drawbar and horseshoe-type sear which pivots on either side of the frame, the center portion of which engages the full cock notch of the hammer for single-action fire, and a revolverlike strut attached to the hammer for double-action fire. The expensive horseshoe-type sear is the PP feature least copied by others.
- (6) An internal slide hold-open activated by the magazine follower after the last shot, distinctive for its shape and location, and for the fact that it serves as an ejector as well.



WALTHER PP AND PPK The three members of the PP family are: (top) PP; (bottom) PPK; and (center), the halfbreed PPK/S for United States consumption.

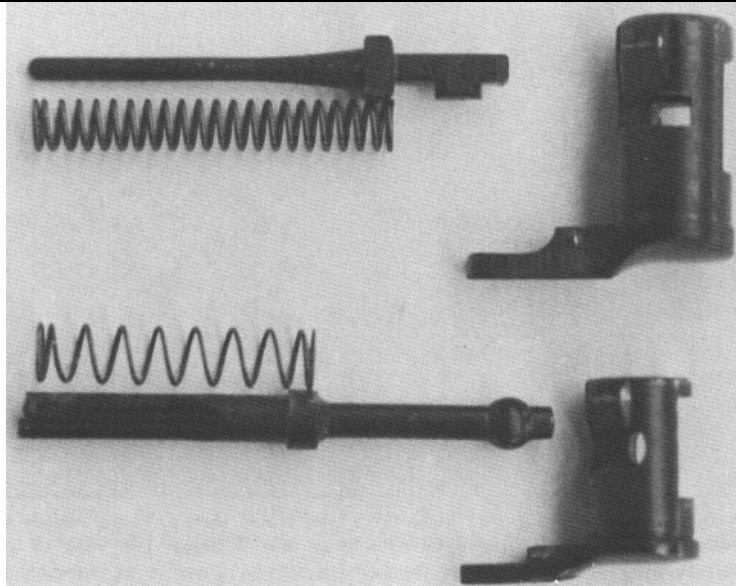


Field-stripped PP and PPK show differences between the two, as well as the features we usually think of as being of Walther origin. Note the massive, one-piece slide stop ejectors mounted on the frames and pivoted at the front, just under the chamber.





Walther's expensive horseshoe sear is the PPK's least copied feature. Prewar models had hand-detachable sears, which could be gunsmithed over if trigger pull were off par, but current sears are drive-fitted at the factory. Half-round section of drawbar, just ahead of sear, is the disconnecter, activated by the underedge of the slide.



Larger set is the PPK firing pin, spring, and safety, showing lug on the firing-pin shaft, which is blocked by the safety tumbler when the safety is applied. Smaller set with spherical lug on rimfire firing-pin shaft is for the TPH vest-pocket pistol.



The PPK was much favored by the Gestapo. This one from the Imperial War Museum in London carries swastika grip plates.

The PP, or Polizei Pistole, was, we mentioned, introduced in 1929, with its slightly smaller companion, the PPK, following along a few months later. The PPK was intended as a concealment gun for detectives, hence its name, Polizei Pistole Kriminal, for in Germany the Detective Division, or Kriminalamt, takes its name from the hunted rather than the hunter.

The PP and PPK use the same basic mechanism, and differ in that:

- (1) the PPK has a shorter slide and barrel than the PP, and
- (2) whereas the PP has a backstrap integral with the frame forging and uses two-piece panel-type grip plates, the PPK has a shorter, skeletonized frame, depending on the grip molding itself to form the backstrap. The shorter grip of the PPK of course requires a shorter magazine, hence one round less capacity.

In December of 1968 the United States Treasury Department banned the PPK from importation (despite the fact that the gun enjoyed great popularity with American police, and that there has been no documented case of a commercial PPK's having been used in crime) on the grounds that it was „too small.“ The PPK measured 3.9 inches vertical, and the Treasury Department insisted on a height of 4 inches before reissuing import permits.

In order to comply with Treasury requirements, Walther introduced a new model, exclusively for the United States market, called the PPK/S-the „S“ standing enigmatically for „Special“-which consisted simply of a PPK slide, barrel, and recoil spring mounted on the larger PP frame. Production commenced late in the summer of 1969.

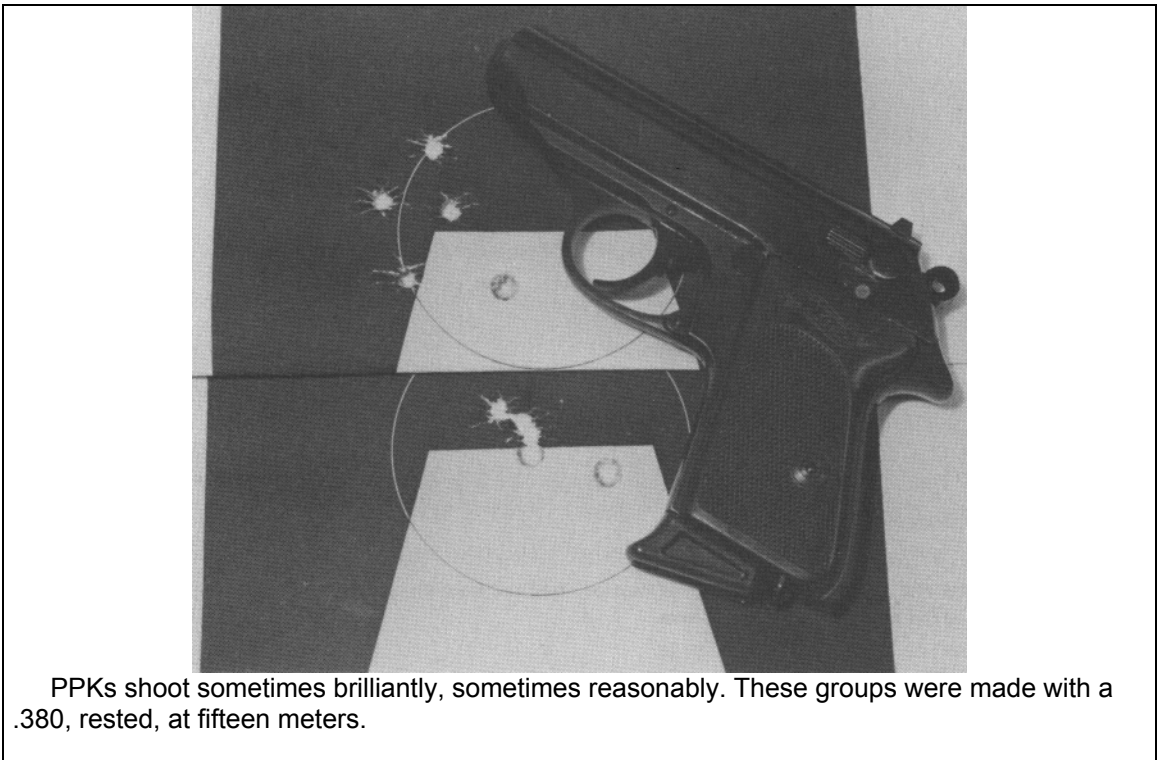
The PP and PPK saw massive military, police, and Nazi Party enforcement use during World War II, and remained in production until American forces captured the Walther plant at Zella-Mehlis at the end of April 1945. A few weeks later, Uncle Sam, in an unexplainably altruistic gesture, gave Thuringia, the four-century-old center of German small-arms production, to the Soviets, and Fritz Walther had only a few hours at most to dump some blueprints and papers into a suitcase and flee to the Western Zone, where he successfully defended his rights to his patents, and went back into business manufacturing office. equipment, calculating machines, and the like.

PP and PPK production was licensed to Manurhin in Alsace, just over the new border in France. Later, when Germany was permitted to resume handgun production, the Walther banner and the new Ulm/Donau address went on the guns, and final operations were shifted to the Walther plant, but most stages of manufacture remained, and still do, at Manurhin, which still makes the pistols in their entirety for the French market.

The PP and PPK were originally offered in .22 LR, .25 ACP, .32 ACP, and .380 ACP. The .25 was never popular in an arm this size, and production was not resumed after the war.

The tremendous success of these remarkable handguns is evident by any measure. The Turks manufacture it under license for their military forces and for civil sale as well. Unlicensed copies or near copies are manufactured in Hungary, Czechoslovakia, and East Germany, while the Bernardelli Model 60, Beretta Model 90, Astra Constable, and Russian Makarov and Stechkin show strong Walther influence in their design.

As a final tribute, the PP and PPK, in their myriad slight variations, have become sought-after collectors' prizes while still at the height of their popularity as practical weapons.



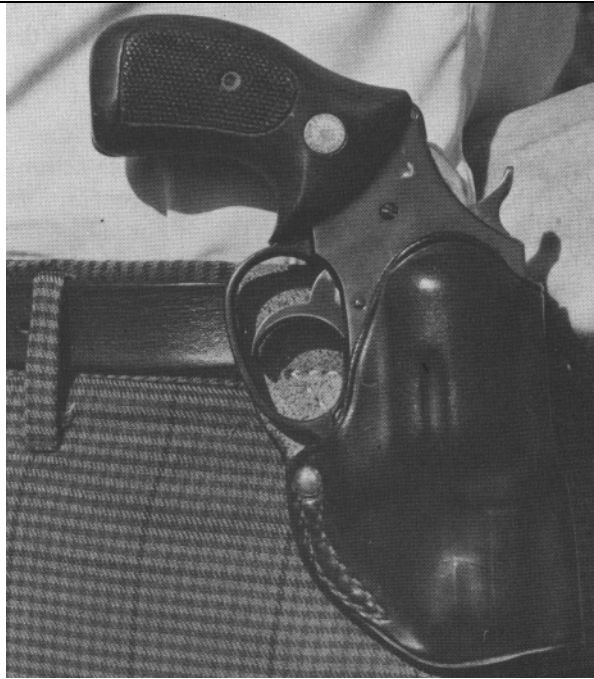
„UNDERCOVER“ .38 S&W

The Charter „Undercover“ is an example of a uniquely American type of handgun known as snubbifs, snugs, or more loosely, belly guns. „Belly gun“ is actually a generic term for any small, reasonably powerful, easily concealable, short-range defense gun, meant to be carried in the waistband or shoved into an assailant's guts as the trigger is squeezed. Thereby the etymology. The need predated the invention, and belly guns, or at least handguns which met the criteria, were common as far back as the wheel-lock era. Later, in the first half of the nineteenth century, Henry Deringer of Philadelphia became famous for his pocket-size pistols, single-shot cap-and-ball .44s which would hide in the palm of the hand. John Wilkes Booth used one to assassinate President Lincoln at Ford's Theatre.

But the snub is a type apart—a small-frame revolver with a barrel of $1\frac{7}{8}$ inches to - 2 inches in length, usually chambered for .38 S&W. Though small revolvers had always been popular, they were generally of feeble calibration, and even though the frames, cylinders, and grips were often quite tiny, barrel length was rarely less than 3 inches.

About 1926 Colt had the happy inspiration to bob the barrel of their small-frame Police Positive Special off to 2 inches, and put the abbreviated version in the catalog as the „Detective Special.“ In 1928 it was joined by the Banker's Special, a sawed-off rendition of the Police Positive in .38 S & W caliber (the frame and cylinder were too short for .38 S&W). These at any rate are the dates given by the scholarly Mr. James E. Seren. General Julian S. Hatcher and McHenry and Roper attempt to turn the chronology around. The Banker's Special was introduced first, they insist, and was designed at the request of the Post Office Department primarily as a pocket gun for railway mail clerks. This explanation is pleasing in that it supplies the commercial stimulus for the innovation.

Whichever came first, by 1928 Colt was building two models to a concept which no one was sold on but the postal clerks. The police market was the obvious one to develop, but there was widespread skepticism in law-enforcing circles that a snub-nose revolver could deliver acceptable accuracy. J. H. Fitzgerald, Colt's legendary public-relations man and an accomplished trick shot, set off across the land to convert the cops to the snub notion. He succeeded all too well. Rare today is the plainclothesman or off-duty officer whose sidearm is not a snub .38. And shopkeepers and householders in need of a defensive sidearm understandably follow the lead of those who assumedly know best.



CHARTER ARMS .38 SNUB REVOLVER

Much power in a small package. The .38 Snub is the favored arm of American detectives and off-duty patrolmen. This Charter Undercover rides in a custom, handmade, crossdraw holster.



The Colt Detective Special at left was the first true snub, and is still regarded as the most accurate of the lot. Its 21 ounces help dampen recoil and its sights are laudable. Colt's most portable model is the aluminum frame, chopped butt Agent at right which, like all Colts, holds six rounds.



Smith & Wesson's Chiefs Special is the most popular and meticulously manufactured of the snubs, has a mechanism of clockwork finesse, and strips via a side plate.

As it turns out, the snub, because of its abbreviated sight radius, is an extremely difficult gun to shoot well, and any time the weapon is to be worn holstered, one is much better off with a 3- or 4-inch barrel. These, though little known, are available from the factory at no extra cost on most normally snubbed models. The snub finds its true *raison d'être* in circumstances which call for carrying it in a pocket or in a horizontal shoulder holster.

Smith & Wesson did not introduce a hacked-back model until 1936, and this was their Terrier in .38 S & W, the cylinder of which was too short to take the .38 Special cartridge. In 1938 they got a .38 Special on the market with no particular effort by lopping the barrel and rounding the butt of the M & P, which either-end amputations in no way mitigated the fact that, for pocket carry, it was enormous.

Perhaps this relative disdain for fad is to Smith & Wesson's credit. At any rate, their first really proper snub, the .38 Chiefs Special Model (indistinguishable from the Terrier save for a slightly longer cylinder and frame) was not introduced until October, 1950, and probably at the behest of the Air Force, since some of the first did have aluminum cylinders and did see flight service with the poundphobic USAF.

The Chief was followed, in December, 1952, by the Centennial Model, which has an internal hammer for double-action-only fire, and a backstrap-mounted grip safety, and in December, 1955, by the Bodyguard with built-up frame walls which shroud all but the tip of the hammer spur, permitting thumb-cocking but preventing the spur from snagging pockets, coat linings, and the like.

These three Smiths, which save for the differences noted are one and the same, are by a large margin the most popular snubs built.

The Charter „Undercover“ was introduced during the summer of 1965, and was at that time the unique product of the infant Charter Arms Corporation of Bridgeport, Connecticut. Some 100,000 Undercovers have been shipped to date. The gun is of more than passing interest since, besides being a sound and representative example of its type, its overwhelming success illuminates several facets of the epoch of its introduction, and its internal design has had a tremendous influence on the subsequent evolution of revolvers in general.

Charter was founded in 1964 by Douglas McClenahan, a talented design engineer with eight years of experience at Colt, High Standard, and Ruger successively. When Ruger made it clear that there was no room in their manufacturing philosophy for the .38 snub revolver which McClenahan visualized, he took the risky step of resigning and founding his own company to produce the gun in direct competition with the entrenched colossi, Colt and Smith & Wesson.

When the Undercover hit the market, S & W and Colt were laboring under a crushing backlog of Vietnamese War-related contracts, and were unable to meet deliveries even to U.S. police departments. The police, meanwhile, were being spread thinner and thinner by the threat of widespread civil disorder, unable to cope with a spiraling crime rate. Shopkeepers and householders who, during the complacency of the Eisenhower decade, the optimism of the Kennedy era, had never once dreamed the day would come when they would feel it necessary

to defend their own premises with firearms, suddenly saw the need, sometimes fancied but too often quite real. Finally, with the economy booming in spite of it all, more people had more leisure time and vastly more money to devote to it than ever before. Many among them decided that handgun shooting might make a fine sport and hobby, as indeed it does.

Thus with a tripartite demand and the traditional sources of supply bottlenecked by war production, Charter and its products became an instant success by default. Though for want of something better the Undercover was happily bought, the production problems which are inevitable when an untrained crew undertakes to build an untried design resulted in a low level of workmanship for the first 5,000 guns which gave the Charter brand a black eye for openers. Then there were the bugs which have to be worked out of any new product.

By January of 1970, the Undercover had undergone 147 engineering changes, or one change of specs or blueprints every 12 working days. Although Charter has never quite equaled Smith & Wesson's best level of workmanship, the Undercover, as currently made, is a tightly toleranced, well fitted and finished revolver of good design and excellent metallurgy.

For want of the several decades it takes to establish a top-of-the-line name, the Undercover, since the market leveled off in 1969, has had to make it on its own merits. These are several and worth noting.

At 16 ounces, the gun is the lightest steel-frame .38 Special made. By using an aluminum-alloy grip-straps trigger-guard unit, Charter saves weight in a patently nonstress area. For people who desire the lightest possible .38 concealment gun, but are unwilling to sacrifice the strength and durability of a steel frame, the Undercover is an attractive choice.



The Charter offers brute simplicity, very good quality, and fine sights. Pin drift and screwdriver strip it this far with no reassembly problems. The frame is of chrome molybdenum steel, while the grips straps are of die-cast aluminum.



The Undercover's official portrait shows the nickel-plated version, and production specimens look equally as good.

The ejector rod locks into the breechface at the rear and into the frame at the front of the cylinder, accomplishing the strongest lash-up of any current American-made double-action revolver.

The Undercover, if no more inherently accurate than its competition, at least lends itself to marksmanship with less reluctance. The trigger and hammer, at $\frac{5}{16}$ inch, are wider than the norm, and are properly serrated to provide comfortable friction without rasping either skin or clothing. The front sight, at $\frac{1}{8}$ inch, is again considerably larger than those on comparable guns, while the rear notch is shadowboxed into the frame, providing a sight picture which would be ideal were it not slightly overtight. This is easily remedied by a file pass on either side of the front post. These sights are one of the gun's best points. While the Undercover's standard grips are nothing less than atrocious, Charter stands unique as the only American manufacturer to offer, as factory optional, a set of functional, well-designed combat grips for their gun.

The primary points of the Undercover's internal design are the hammer block safety, the hand and the safety block set in flush with either side of the trigger, and the wire-torsion trigger-return hand spring coiled around the trigger axis pin.

Of these three, the hammer block safety is particularly meritorious, and consists of a vertical block pivoted to the trigger, which, when the trigger is pulled fully to the rear, rises up and interposes itself between the frame-mounted firing pin and the face of the falling hammer, thus transmitting the hammer impact to the firing pin. When the trigger is released, the block is pulled back downward, leaving the nose of the hammer resting against the solid steel of the frame. In order for a blow on the hammer to fire the gun, it would first have to crush the nose of the hammer.

This arrangement is fail proof and eliminates the need for a hammer-rebound mechanism. The more knowledgeable will recognize a direct design antecedent in the old Iver Johnson with its famous „Hammer-the-Hammer“ safety. The Iver Johnson indeed worked just as described, save that the hammer block did double duty. A bent on its rear face engaged a notch on the hammer, so that as the block was pushed upward by the trigger, it in turn rocked the hammer back for double-action fire. This arrangement seems mechanically quite sound, but is said to have resulted in a rather variable double-action let-off. What McClenahan's design did was to segregate functions. The Charter uses a conventional triggerhammer strut double-action searage, and the block serves only as a safety device and to transmit hammer impact to the firing pin.

In 1968 Colt introduced their new Mark III revolver with an entirely reengineered mechanism, meant eventually to replace their entire previous line. It incorporates the Charter-type single-function

hammer block. That same year Sturm, Ruger in Southport, Connecticut, and a new firm, Dan Wesson Arms in Monson, Massachusetts, announced their intention to introduce new double-action revolvers, Ruger's to be known as the Security Six, Wesson's as the Model 12. Both incorporated the Charter type hammer block, which was nonpatentable, since Iver Johnson's

basic patent, long since expired, had been broad enough to cover any third part interposed between hammer and firing pin, and serving both to transmit hammer impact to the firing pin, and as a safety device when the trigger was released. This feature, if not strictly the fruit of McClenahan's innovative genius, would likely have lain dormant had he not recognized its excellence and incorporated it in the Undercover. He did, and a large portion of the United States revolver industry has taken its lead from him.

The Undercover, available in 2-inch or 3-inch barrels, blue only in 3-inch and choice of blue or nickel in 2-inch, was joined in the line in early 1970 by the six-shot, 3-inch barreled .22-caliber „Pocket-Target“ model, built on the same frame as the Undercover, but incorporating fully adjustable sights. During the summer of 1970 the Undercover was offered in a six-shot version, chambered for .32 S & W Long.



Charter's optional combat grips increase the trigger reach and spread out the recoil, which is much to be desired on a gun of this size, weight, and power.



Colt's Mk III mechanism employs a Charter-style, single-function hammer block, mounted on the trigger just beneath the cylinder-rotation hand. Charter mounts these parts on opposite sides of the trigger. Much of the rest of the Colt action is original.

Scheduled for introduction during 1971 will be a small-frame, snub-nosed .44 Special, which will lift the snub, that fine American institution, to an entirely new level. Some, of course, will note a spiritual antecedent in the Webley RIC and British Bulldog models of the turn of the century. Quite rightly. But they were British, and the cartridges they chambered-.442, .450 Eley, .455/.476-were sedate numbers. The principle of the American snub is to compact as much power as possible into the smallest possible package. Charter's .44 Special Bulldog, as they plan to call it, will do that as it has not been heretofore done.

SMITH & WESSON MODEL 19 „COMBAT MAGNUM“

The Combat Magnum is one of the finest examples of current American handguns. Finely finished, meticulously constructed, superbly accurate, it is a medium-weight revolver with fully adjustable sights and large, hand-filling stocks—a sheer necessity for a 35ounce weapon delivering twice the recoil of the .45 automatic. Chambered for the .357 Magnum cartridge, the Model 19 (like any .357) will also fire any .38 Special cartridge when the shooter does not fancy the abuse of the hard-kicking Magnum. Loaded with .38s, it is an extremely pleasant gun to shoot.



SMITH & WESSON MODEL 19 COMBAT MAGNUM

The Combat Magnum is as close as one can come to the all-around handgun. Loaded with .357s, it delivers as much power as a gun its size will contain, while with lightloaded .38s, its fine accuracy makes it an ideal plinking, small game, and target revolver.

Introduced in January of 1956, with serial numbers starting at K260,000 in the Masterpiece series, the Model 19 is built on Smith & Wesson's intermediate-sized K-frame. (The J-frame is smaller and the N-frame larger.)

For all practical purposes the gun is a .38 Masterpiece chambered for .357 Magnum with a ramp-type front sight for holster wear and an ejector-rod housing under the barrel to add a bit of weight. Put another way, it uses essentially the same frame and mechanism as the M & P revolver which Smith & Wesson introduced in 1899, with niceties such as ribbed barrel, adjustable sights, and broad hammer spur added. Not to mention, of course, improved metallurgy and heat treatment which makes the use of the .357 Magnum possible in such a small gun.

Although never adopted by the United States military as an official sidearm, the Combat Magnum, like its equivalent, the Colt Trooper, has seen a lot of battlefields nevertheless. It gained a fine reputation and much popularity among Marines in Korea, who prized its penetration on Chinese body armor which was proof against .45s. It is much sought after in Vietnam as well, where the Navy and the Air Force have issued it and/or its near twin, the .38 Combat Masterpiece, in considerable quantity.

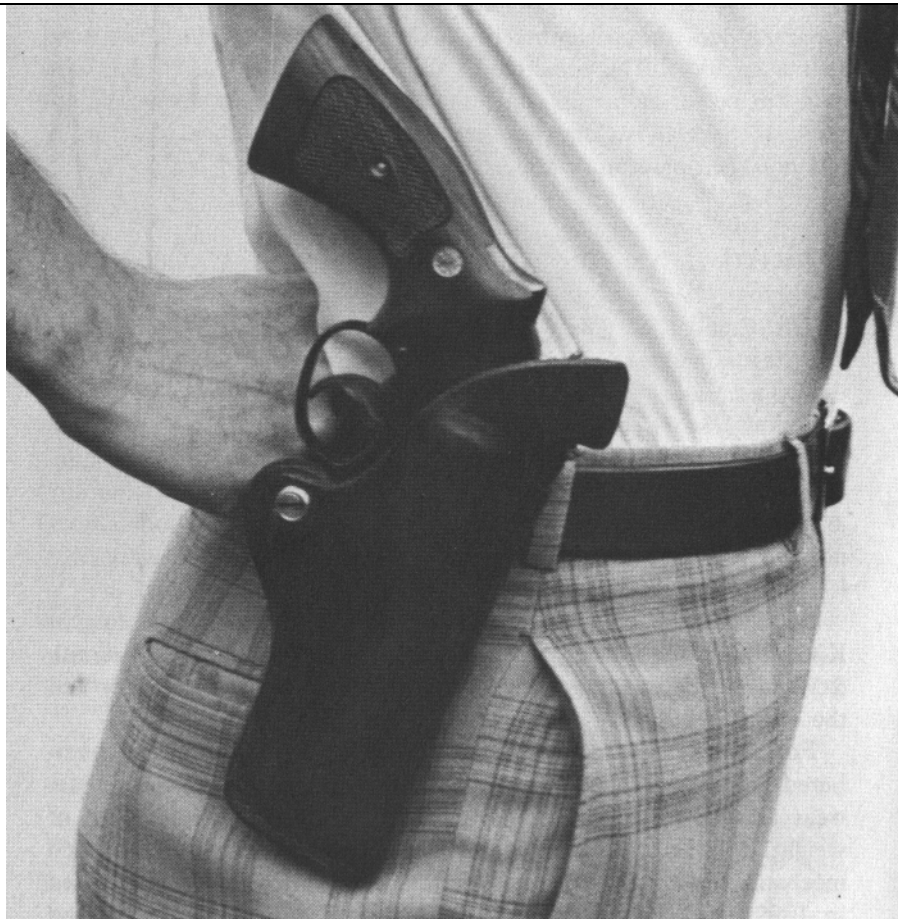
In classical target competition no revolver can stand alongside the best automatics. In the burgeoning arena of police combat matches, however, where autoloaders are banned from the field, the Combat Magnum reigns preeminent. Fitted with a 6-inch barrel, it is the favored gun by a large margin, and only the Colt Python gives it serious competition.

In the more common 4-inch barrel length, it is the prestige holster gun for American gendarmes, issued by many state and local police units and privately purchased by officers in less fortunate departments who want the best and do not doubt that with this gun they are getting it.

The Combat Magnum comes closer than any other to being the all-around, all-purpose handgun. Some thirty different cartridges are available for it, factory loaded, off the shelf, ranging from blanks to armor-piercing, from target to tracer, from roundnose service loads to expanding hunting and combat loads. Handloading expands its capabilities still further. And the surprising thing is that the gun plays each role to near perfection; the inevitable compromises are minimal. If loaded to the gills for deer hunting or highway patrol work, it is overpowered for

its weight, and frankly skating onto its built-in safety margin, yet it is still superbly accurate and reasonably comfortable to shoot. Its minimal weight on the other hand makes it acceptable for plainclothes work, while its moderate bulk makes it easy to handle even for women and others with small hands. Its ability, unlike an automatic, to function with powder-puff loads, makes plinking and informal target shooting with it a pleasure.

Powerful and rugged enough to make it a favored battle pistol; accurate enough to fire championship scores on the target range; such is the .357 Combat Magnum.



The Model 19 is much used by knowledgeable law-enforcement officers. Here it rides an FBI-pattern holster, designed by Hank Sloan, their former chief of training.



A tight two-handed grip is needed to hold down the Magnum's exuberant recoil for fast follow-up shots.



Colt's Trooper is the 19's competition. Somewhat beefier all over, it is preferred by many.

THE HANDGUN OF THE FUTURE

IT IS CURIOUS that the controversy that raged during the early years of the century over the comparative merits of the revolver and the automatic pistol has not yet been resolved. Despite the universal adoption of the automatic by military forces worldwide, the revolver will not let go. With rare exceptions American police, led by the FBI, shun the self-loader like the plague, and their opinion carries considerable weight. Many civilians, in all quarters of the globe, second this motion in favor of the revolver, and European police seem of late to be coming under the - some would say anachronistic - influence of their North American colleagues.

What are the points in contention? The noted British authority W. G. B. Allen has, with rare impartiality, listed them this way.



Almost without exception, the gun that enforces the law in the United States is a revolver. But that is gradually changing.

In favor of the revolver:

- more tolerant of mediocre ammunition -safer, since the chambers are visible at a glance
- a misfire may be overridden quickly and without using both hands
- more accurate in single-action fire than service semiautos
- it never jams-according to Mr. Allen
- it may be left loaded without having springs under tension
- no levers or switches to be manipulated, or perhaps overlooked.

We might note another advantage: the ability of the revolver to digest a diversity of loads.

In favor of the semiauto:

- double the cartridge capacity of the revolver, if the auto is properly designed
- much faster to reload
- faster accurate fire, since the revolver must be fired double-action to achieve speed, whereas the auto trigger is of the single-action type, albeit a bit heavy
- greater muzzle velocity (less valid since the development of Magnum revolver cartridges)
- more compact than comparable revolvers
- much easier to equip with a silencer.

It goes without saying that the partisans of one type ignore, if they do not deny, the advantages of the other. And would we be favoring the revolver too much if we noted that American specialists manage to achieve very useful accuracy in fast double-action fire, and many advocate dispensing with single-action altogether? Likewise, the use of half-moon clips and rimless ammo could result in a tremendous speeding up of reloading, and the time lag during this operation has always been the cylinder gun's supreme disadvantage.

Revolvers and automatics each lend themselves to certain uses, as do the cartridges they chamber. If we study the American example, we find opinion congealed more or less along the following lines:

For combat use 9mm and .45 automatics are favored, as are .357 Magnum revolvers. The .38 Special revolvers are popular with police, but are generally considered underpowered for the job, and the tendency is to duplicate, insofar as possible, .357 ballistics in the .38 case. Big-bore, medium-velocity revolvers such as the .41 „city load“ and the .44 Magnum loaded down have a small following. Full-power cartridges in these guns require too much time in recoil recovery, thus slowing follow-up shots.

For hunting small game the revolver is preeminent, chambered for .22 LR or .22 Magnum rimfire, often with interchangeable cylinders. For hunting medium-to-large game the revolver again holds undisputed sway, and is favored in .44, .41, or .357 Magnum with full-charge loads.

For target shooting, automatics are used almost exclusively, and three, chambered for .22 LR, .38 Spl., and .45 ACP, are required to go the whole course, although some shooters, usually for budgetary reasons, use the .45 in place of the .38, as the rules permit. All this concerns the American target-shooting scene. Europeans fire four pistol courses. The 50-meter slow-fire match requires a .22 LR single-shot pistol; the Standard Pistol course is fired with a .22 LR semiauto. The rapid-fire match calls for the use of a .22 short semiauto, although the LR may be used if you are not terribly keen to win. The center-fire course may be attempted with any center-fire pistol or revolver, and since only one shot is fired per string, .38 revolvers are the favored weapon.

It would seem assured that both types of handgun will be with us for quite some time to come, although the automatic appears to be gradually gaining ascendancy.

In both types the trend has been to ever higher velocities. In bigbore revolvers, this has been carried to the uttermost limits of practicality. The forthcoming .44 Auto Mag, from a California maker will likewise take the large-bore self-loader hard onto the point of diminishing returns.

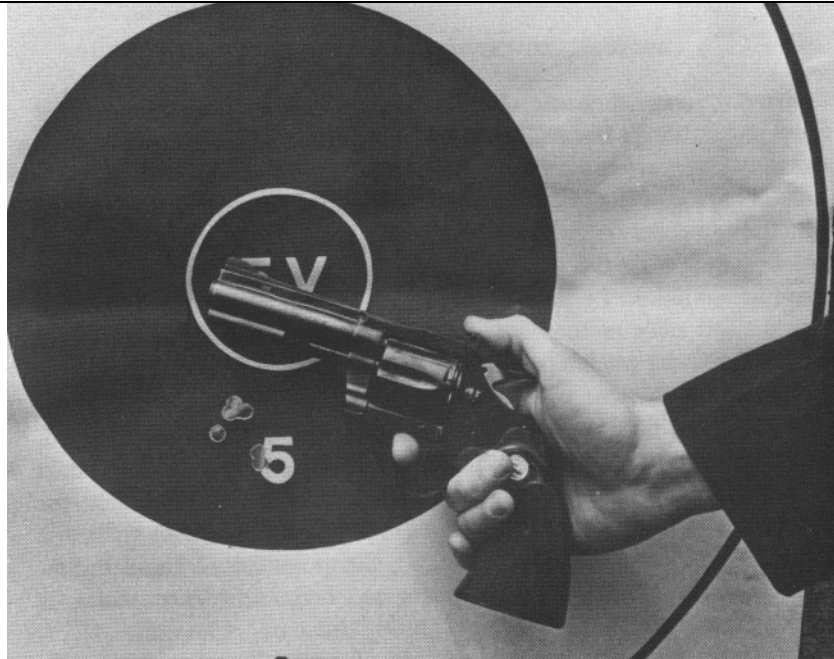
In the small and medium bores much remains to be done, and the semiauto will be the favored gun. Smith & Wesson and Ruger both made a stab at the small-bore, high-velocity market with revolvers chambered for the .22 Remington Jet and .256 Winchester cartridges, both of them bottlenecked .357s. Ruger's was altered to single shot during development, but Smith & Wesson persisted with a wheelgun, with no great success - if a trace of lubricant were present in the chamber, the case would set back and expand during discharge, binding the casehead against the standing breech and impeding or preventing cylinder rotation for the next shot.

The ballistics of either of these cartridges, however, could easily be duplicated in a semiautomatic, and likely will be in the future.

High-velocity .30 calibers, however, could lurch to popularity immediately, for virtually none of the development money industry is so loath to disburse would be required to put them on the market. The pieces are all there. The best of the .30s is the 7.63 Mauser-7.62 Tokarev, since it has a larger powder capacity than its rival, the 7.65 Parabellum (.30 Luger). The Parabellum, however, is the one that will make it, because of the vast popularity of the 9mm of that family. Any 9mm Parabellum pistol can be converted to .30 merely by changing barrels, and indeed, the SIG 210 (SP47/8) and the Beretta 951 (M1951) enjoy considerable popularity in Switzerland and Italy in the 7.65mm configuration. Walther as well does a booming business with .30 P-38s in Italy, since Italian law denies the 9mm to civilians. In the United States, Smith & Wesson and Colt would need only to turn a few barrels to make the Model 39 and the Commander available in .30 caliber.



Hunters use the wheel gun almost exclusively, usually favor Ruger single-actions or S & W selective double-actions in the heaviest frame size for their combination of fine accuracy and smashing power in .41 and .44 Magnum. The wire-form rig is the Freed pistol holder, one of the best for a scoped handgun.



The revolver is still the best fun gun, simple enough so that every member of the family can be taught to use it safely and effectively. Colt Diamondback is small and light enough to be handy in small hands, heavy enough and of fine enough quality to make accuracy come easily. It is built in .38 Special, .22LR, and .22 Magnum.



When firepower is an issue, the answer is obvious. The automatic offers greater initial capacity, plus magazine reloading. Revolver takes about twelve seconds to reload, while the semiauto is recharged in two. Colt .45 Commander compared to 3-inch Charter .38.

The hot .30s were the big thing around the turn of the century, during the cradle days of the self-loading pistol. They were loaded, however, with full-jacketed, nonexpanding bullets, and battlefield experience promptly proved their elevated velocities were not the answer. Thus the advent of the 9s. Today, however, with soft-nose expanding bullets the nouvelle vague, the potential of these bottlenecked cases, with their light bullets and large powder capacity, is starkly apparent.

The revolver has reached its peak of perfection. It will remain popular for decades to come, but technically it is stymied. The automatic, however, still has worlds of elbowroom. And with each new improvement and innovation it will gain popularity. The double-action automatic will make the most outstanding immediate headway. The double-action self-loader is the wave of

the foreseeable future, and this is a fact well known to our more astute manufacturers. Autos that cock themselves for the first shot by a long pullthrough on the trigger like a revolver have been kicking around for the last half-century; more than fifty models have bloomed unseen. They were ahead of their time; their day is just now dawning.

The 9mm Parabellums, as a rule, are considerably bulkier than they should be. The whole lot could stand trimming in all directions, and Parabellums of the future will be scarcely larger than the Walther PP, except for those with double column magazines.

The .32 ACP, so vastly popular in Europe as a police and personal defense gun, is gradually fading in favor of the .380 auto, which is more powerful, and is invariably chambered in weapons dimensionally identical to the .32s. The .380 is gaining in the United States as well, where it is competing with .38 Special snub revolvers.

The .25 ACP, so some would say, should have been cashiered decades ago, but if it goes, it will go slowly. There is some evidence that it will be eventually replaced by guns of the same type chambering the .22 Long Rifle cartridge.

Few of these developments will see the first light in France. However, if French laws were relaxed a bit, the domestic market would warrant considerable innovation on the part of native manufacturers. Even with the situation as it stands, some good things are being done with .22s-witness Unique's new D.E.S. 69, an arm of excellent and imaginative design, and one of the world's finest rimfire target automatics.

Across the board, France produces some decent self-loaders in .22 through 9mm calibers. The 7.65 Long is sinking from sight without the slightest regret on anyone's part, and production of servicetype semiautos is rightfully oriented toward the 9mm Parabellum. Of which exactly one, the MAB, is made commercially! The MAC 50 service pistol has enough to recommend it, and could and should be commercialized if the market were there. The market, of course, waits on the law.



Smith & Wesson M39 9mm has been adopted by several United States police agencies, including the Illinois State Police. A no-tools, twenty-second barrel change would turn it into a bottleneck, high velocity .30 caliber (7.65mm Parabellum). SIG, Beretta, and Walther pistols are so offered.



Double-action automatics are the wave of the foreseeable future. This is Beretta's new line as it stands: Model 90 in .32 ACP and Model 20 in .25 ACP. A d.a. full-bore battle pistol would complete the series.

As far as revolvers go, France is barren ground. The last one was the Saint-Etienne of 1892, and an examination of this hoary relic shows it, surprisingly enough, to be eminently worthy of resurrection. The action is simple and straightforward; its swing-out cylinder and rod-ejection system is the equal of the latest Colt or S & W; and its hinged sideplate, which swings open like a book cover when a coin-slotted screw is spanned, makes it the easiest revolver ever made to disassemble, clean, and repair. It is light, well balanced, easy handling, and easy shooting. Why not? With modern steels, cylinder diameter could hopefully stay the same, although the reedy barrel (less than $\frac{1}{10}$ inch in wall thickness at places) would want fattening. The gun's Gay Nineties silhouette is a bit archaic, but that is no great issue, and would in any event be overcome merely by beefing the barrel and altering the grip shape. Why not indeed?

The cylinder of the '92, as it stands, is too short for the .38 Special, but quite long enough for the 9mm Mauser, a possibility which interests us enormously. The 9mm Mauser, being rimless, would require half-moon clips, and this combination would put our neo-92 almost on a par with semiautos for speed of reloading, with a cartridge of near-.357 Magnum ballistics. The Mauser case, of course, would headspace primarily from a shoulder in the forward part of the chamber, but shorter cases could just as well headspace off the half-moon clip. Just as .38 Specials may be fired in a .357 Magnum, the 9mm Parabellum, 9mm Bergmann-Bayard, .38 ACP, and .38 Super could be fired in this gun.

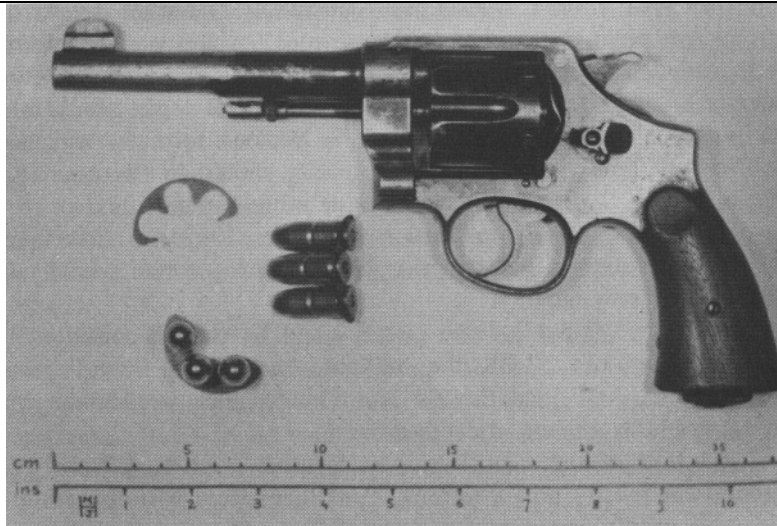
Thus the choice of the nearly defunct 9mm Mauser cartridge for a new revolver would seem to make excellent sense. Semiautomatic and automatic weapons, however, are a different case. The 9mm Parabellum is too firmly entrenched to be dislodged, and the conversion of existing weapons for the longer cartridge is mechanically unfeasible if not flatly impossible. In any event, it is of no overwhelming importance, for the hottest Parabellum loads trail

only about 70 feet per second behind the Mauser. The Parabellum is a good cartridge, and the French MAC 50 service pistol and MAT 49 submachine gun are good weapons. But why stop with them?

We might explore the possibility of developing a semiauto or selective-fire carbine (on the order of the American M1, M1A1, and M2 models) in 9mm Parabellum. Such a gun would be light, easy handling, soft recoiling, and reasonably accurate up to 200 yards, even in less than expert hands. Its adequate stopping power and moderate penetration would recommend it for police use in urban areas.

An arm of the bulk and barrel length of the MAT 49/56 (similar to the American Garand M1) with which the Paris police, God only knows why, are equipped, would make a highly interesting mini machine gun if bipod mounted and chambered for the 9mm pistol cartridge.

This quadrumvirate would finally realize the old dream of total ammunition interchangeability among all tactical small arms—not for the army, of course, but for police, and for European police in particular.



Half-moon clips, a World War I development by S & W to adapt revolvers to the .45 service automatic cartridge, gave as a by-product vastly speedier reloading. The Israelis have applied this idea to the 9mm, and there is no reason to stop there.

If chambering our neo-92 for the 9mm Mauser seemed a good notion, why not carry the logic a step further and admit that we could happily do without revolver cartridges altogether, and chamber our wheelguns for autopistol rounds exclusively. We already have .45 ACP revolvers. Add the 9mm family and what is left? To stretch the point, maybe we could use a .32 which would chamber indiscriminately the 7.65 Long, the .32 ACP, and perhaps other rounds as well. A .380 pocket revolver, by this logic, would also be welcome, as would .22 rimfires in various formats, which of course we already have. Cartridge capacity should run 6 rounds for the big-bores, 7 for the .32s, and 9 or more for the .22s.

The only functional application not covered by this assortment is big-game hunting, and the new .44 Auto Mag round would take care of that very handily.

The present gamut of auto pistols could be pruned considerably, leaving us with the .22 LR, the .380 auto, the .30 and 9mm Parabellum, the .45 ACP, and the .44 Auto Mag, which would take care of all needs, legitimate and otherwise.

Regardless of the cartridges they chamber, and frankly the preceding was mostly pipe whistling, guns themselves will change considerably within the next few years. Handguns cannot continue to be manufactured as they now are and still wear a bearable price tag. Ruger's Security Six, for example, is almost totally investment cast in an effort to hold machining costs to a minimum. The investment casting process itself, however, is expensive, and the extremely tight tolerances a double-action revolver demands make machining certain engagements almost unavoidable.



Colt's former and formidable chief of research and development, Paul LaViolette (left), looks on with patriarchal malevolence as design engineers Dick Baker (seated) and Henry Into struggle with the problem of how to make fine revolvers cheaply. Not an enviable task.



Colt's new Mark III series, which will replace its modified Galand-Schmidt line of three-quarters-of-a-century standing, uses a powder-metal mechanism to save on machining and fitting costs, but the rest of the gun is still a pig to build, as is the nature of good revolvers.

Colt has taken a different approach with their Mark III series, which uses compressed powder-metal components for the mechanism. The frame and cylinder, however, still require lavish machining, not to mention the barrel on the Mark III Trooper. In the final analysis, it is doubtful if double-action revolvers can be made both well and cheaply.

Automatic pistols can be. A self-loader can be designed for manufacture from metal stampings and screw machine parts at a quarter the price of current weapons, and equal them on every point save aesthetics.

The handguns of the future, then, will be thrown together from metal castings, stampings, and sinterings, and injection-molded plastic parts. Machinable plastics will also likely see more and more use. Good automatics can be made this way. Good revolvers cannot. In all probability, the high quality revolver will become a plaything for the idle rich.

Ammunition, or the means for setting it off, will also change. High Standard, under military contract, made up a few highly specialized single-shot .22 target pistols during 1960 which used an electromagnetic sear. A battery pack was housed in the grip. When the trigger was pressed, the juice went on, activating an electro magnet which sucked the sear out of engagement with

the striker, permitting it to spring forward and fire the cartridge. This arrangement permitted incredibly light trigger pulls, while maintaining ample sear-striker engagement so the gun would not go off if jostled. It has been reported that seven of these guns were made at a cost of \$5,000 each—a heart-wringing price at first glance, but par for factory-built prototypes of any new firearm.



Walther's P-38 was regarded as a charm to build when first introduced; it was turned out twice as fast as the Luger on half as many machines. Today it seems a hog for handwork, not considering, of course, the engraving on this one.



The Colt .45 was designed for circa 1911 manufacturing practices, as the maze of little fink parts, all hand-detachable, readily attests. It cannot last.



Czech M52, one of the best of current designs, is full of straight cuts and uses a nondetachable side plate over the receiver to get the tooling inside during manufacture. Even the locking components are easy to build.



Heckler & Koch P9S uses a two-piece stamped receiver welded together with space blocks inside, a polymer frontstrap and trigger guard, and a one-piece, stamped slide which is how guns of the future will be made. H & K, however, put the money they saved back into an ornate breechblock head, barrel fork, and roller retardation system.

Major Franklin Green of the USAF built five target pistols of this same type (International Shooting Union „Free Pistol“ category) during 1967, completing them in January of 1968. Based on Winchester Model 52 rifle actions, they also house a battery pack in the grip, and use a solenoid searage. Major Green's guns have performed superlatively in competition, establishing the United States record in free-pistol competition and taking fourth place in the 1969 Olympics at Mexico City.

The utility of electronic searage in service guns has yet to be demonstrated, but there is no doubt efforts will be made to do so.

The next step would be direct electric ignition, and Smith & Wesson has been experimenting in this direction with their 9mm caseless cartridge, which does away with the brass hull altogether by attaching a consumable propellant plug to the stern of the projectile.

In endeavoring to do without it, we discover one of the several virtues of the brass cartridge case-obturation of the bore. When the cartridge discharges, the walls of the cartridge case expand outward and grip the chamber all around, thus sealing the breech against rearward gas leakage. When the bullet has left and pressure in the bore falls off, the case contracts for easy

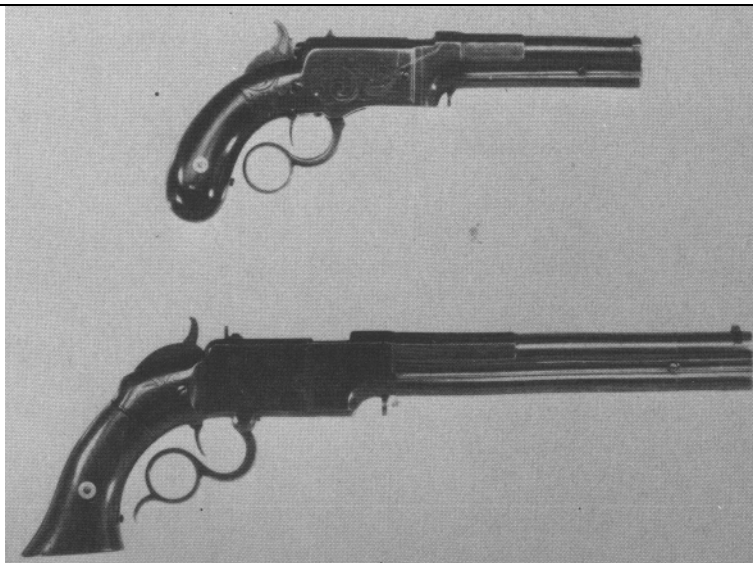
extraction. One of the problems Smith & Wesson has encountered with this project is that gasses do in fact escape rearward around the breechblock, and sometimes ignite the rounds in the magazine.

To date this cartridge has been used only in submachine guns; in a pistol the problems would be considerably accentuated. It is not unlikely, however, that the bugs will be worked out eventually.

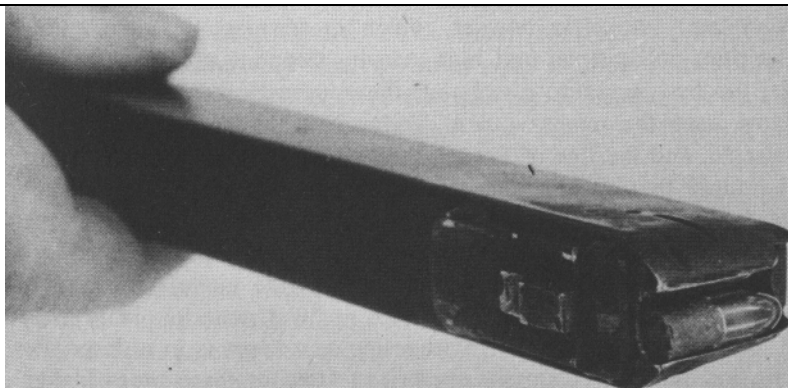
Another approach is rocket projectiles, for which the gun serves merely as a launcher and need not withstand any great pressures or stresses. Walther instigated research along these lines during World War 11, and Gyrojet in California picked up the strings. Gyrojet, since they have placed both the guns and the projectiles on the market, evidently feel they have things to the point of practicality.

The drawbacks to the Gyrojet system, as it stands, are its mediocre level of accuracy, and the fact that the projectile does not build up full velocity until after it has loped along a ways. Thus, at close range, where its lack of accuracy would be of no consequence (most gunfights take place at 12 feet or less) the rocket slug lacks both stopping power and penetration.

Like most conscientious crystal balls, ours is cloudy. It tells us unmistakably though that things will be changing all along, and these seem the most likely directions.



The first Smith & Wessons, these lever-action, tubular magazine pistols of circa 1854 used a caseless cartridge consisting of a lead bullet with the propellant and priming compounds housed in its hollow base, and was discharged by direct impact of the firing pin.



S & W's current experimental caseless 9mm round uses a propellant plug attached to the bullet with priming compound painted on the base. It is electrically ignited and has not yet been used in handguns.

GUN LEGISLATION AND THE SHOOTING SPORTS IN FRANCE

One of the reasons which explains the indifference of the general public to shooting as a sport is that they do not understand it. They know generally that a shooter faces a target, gun in hand, and fires at a mark with some degree of skill or other. Very few exceed this summary comprehension. Is it enjoyable to combat a cardboard target? What pleasure does one perceive in passing days among deafening detonations, inhaling acrid powder smoke? What satisfaction does one find in launching a ball of lead, and perforating a piece of paper?

-Cunisset-Carnot, First President
of the Court of Appeals at Dijon,
about the turn of the century

FRANCE WAS the birthplace of the most important advances in firearms technology. The percussion cap, which made the flintlock obsolete; the expanding-base bullet, which let the rifle replace the smoothbore musket as the standard infantry arm; the self-contained metallic cartridge, which superseded the muzzle-loading cap-and-ball system; smokeless powder, which made machine guns, automatic rifles and pistols, and high-velocity weapons of all types possible; the first semiauto pistol—all these were French inventions.

How have the mighty fallen! Today her handgun production is minuscule, and the line of French-built sporting rifles is so lackluster and limited that she depends primarily on imports. French ranges have fallen into disuse and disrepair, wildlife is disappearing, the purchase of a handgun constitutes a legal and diplomatic undertaking of some magnitude, and any military rifle manufactured anywhere since 1880 is, in effect, classified as „war materiel“ in France, and is strictly forbidden. Target shooting as a sport is in a desperate plight, ammunition is grossly overpriced (two or three times higher than in neighboring countries), a liking for guns is considered an aberration, and gun collectors are regarded as potentially dangerous and of dubious sanity.

Meanwhile crime becomes daily more rampant, the streets become less and less safe, and the naive victim of criminal violence who has the deplorable audacity to defend himself or his family with a firearm is promptly dragged before the bar of...justice?

HOW DID IT COME TO THIS?

Over the past three centuries each of the regimes which has governed France has shared a point in common: a fear of arms in the hands of the populace. The Monarchy, the First Republic, the First Empire, the Restoration, the July Monarchy, the Second Republic, the Second Empire, the Third Republic (except for a brief interval of liberalism), the French State, the Fourth and Fifth republics—none have wanted to let the Frenchman possess other than hunting guns, and even this „favor“ has often been revoked.

All these regimes have had two bêtes noires: handguns, which are easily concealed, and military rifles, or rather any rifle capable of rivaling the issue rifle in effectiveness.

Subject or citizen, the Frenchman has always been suspected by his government of harboring the darkest of intentions. This goes back a long time.

The governmental fear of firearms was such that at the beginning of the sixteenth century the monarchy prohibited their manufacture, and France for some time thereafter produced only edged weapons. In 1536 Lord Montluc, later a Marshal of France, was reduced to ordering arquebuses (matchlock muskets) from Piedmont in order to equip his troops.

And though firearms could not be legally manufactured, people seem to have acquired them nevertheless. Witness a proclamation of François I, dated July 16, 1546, which ordered „... all those who have arquebuses, pistols, or other arms in their households, to turn them in at the City Hall or Chateau under pain of confiscation of the weapons, a fine of one hundred gold écus, and corporal punishment.“

This evidently had little effect, for substantially the same edict was reissued in 1561 and 1563, at the beginning of the reign of Charles IX. In 1629, Louis XIII ordered, „that all such be turned in at the arsenals, except for the provision deemed necessary,“ which is vague at best. Ambiguity, indeed, is a quality which seems to have been carefully cultivated by future legislators on the subject.

A declaration of 1660, amended, or rather reinforced, by an edict dated December 13, 1666, prohibited the manufacture of what were referred to as „secret weapons“: pistols, daggers, epees, and the like. All these were ordered to be destroyed or turned in under pain of a fine of two hundred pounds gold, to be divided between the state and the informer—an elegant means of larding the royal coffers, even if it was not likely to encourage virtue.

This draconian prohibition seems to have had small effect, since, in 1697, a gun dealer in Saint-Etienne was selling pistols in broad daylight, and the prices he charged appear in the tax books of the era. In 1728 a further edict on „offensive secret arms“ more or less restated the terms used in 1660 and 1666, and as police commissioner Bourgoïn noted a few years ago, probably had no more practical effect than had its predecessors.

The French arms industry continued to develop, despite all, with the usual ups and downs, and manufactured both military and sporting weapons, until Colbert, Louis XIV's brilliant finance minister, decided, probably for reasons of internal security as well as for „standardization,“ to separate the two. Henceforth private industry was permitted to manufacture only sporting weapons, while military arms production was restricted to royal establishments. This segregation by decree resulted, according to Ronin, „in a state monopoly on the manufacture of military weapons and prohibited private industry from becoming involved in it.“ And from these beginnings dates the tendency on the part of French officialdom to look askance at anyone who possesses a firearm, unless he wears the proper uniform to go with it.

During the French Revolution, arms were widely distributed among the population, and Napoleon seems not to have been inclined to change this state of affairs. With the restoration of the monarchy, however, a much stricter line would be taken. The Canut Revolt of 1833 in Lyons, which it took a bloodbath to put down, terrified the government, and prompted Louis-Philippe, the following year, to bestow on the nation the law of May 24, 1834, wherein appeared for the first time the vaguely worded proscription of arms ownership which Commissioner Bourgoïn found „so favorable to repressive interpretation.“

The penalties ranged from one month to two years' imprisonment for the possession of a military weapon, or a „stockpile“ of arms; possession of military rifle powder was absolutely prohibited, and „sporting“ powders were limited to quantities of two kilos (4.4 pounds) maximum. There were cases in which persons were sentenced to two years of prison for the possession of several cartridges.

Hard after the 1834 law came the edict of February 23, 1837, which followed the spirit if not the letter of the 1666 edict by prohibiting both the possession and the manufacture of pocket pistols, despite the fact that the exportation of arms of this type was of some benefit to the economy. This situation was recognized by an imperial decree of August 26, 1863, which exempted weapons destined for the export market.

The state monopoly on the production of military arms, Colbert's legacy, had one tangible, long-term result: every time France had an urgent need to arm her forces, the resources just were not there. The state arsenals lacked the emergency capacity, and private industry was not tooled up to assist. Thus every emergency required a search for arms abroad. An excellent example occurred just after 1830, when the Garde Nationale hastily had to order muskets from Britain. The arms received were obsolescent, and of such mediocre quality that at least 25 percent of them had to be scrapped outright.

In 1867, at the time of Maximilian's Mexican disaster and shortly before the Franco-Prussian War, the Imperial Arsenal at Saint-Etienne was unable to produce a sufficient quantity of the new Chassepot service rifle, and contracts for it had to be let to Birmingham, Liege, and Piacenza.

These measures failed to suffice. Three years later, after a series of defeats at the hands of the Prussians, Emperor Napoleon III and his army of 83,000 capitulated at Sedan, and the reins of government fell largely into the hands of Minister of the Interior Gambetta, who was forced, according to Commissioner Bourgoïn „to seek arms abroad, where he in fact bought up practically every obsolete musket in Europe.“

The state monopoly on the production of military arms, besides leaving France dangerously vulnerable, also served to enfeeble and discourage private industry. To consider only one example, in 1848 the law was relaxed to permit the manufacture and exportation of military muskets, and a company in Saint-Etienne was fortunate enough to receive a contract from Piedmont for 120,000 arms. After the company had tooled up, and while the order was in work, the prohibition was reinstated and those arms already finished were confiscated. Not until ten years later was the manufacturer allowed to repurchase and sell them, by which time it was too late to prevent the company's ruin.

Only two years after that, the ill-considered law of 1860 put the final quietus on any commercial production of military weapons, resulting, as we have seen, in the total inability of the French arms industry to help support the nation in the era of the Franco-Prussian War. Paradoxically, just when France most desperately needed a vigorous arms industry, the industry had been so enfeebled by the law that it was unable to react. And if the situation was bad politics, it was bad business as well, for the per-unit price of state manufactured arms was higher than it should have been because of a lack of incentive, competition, and mass-

production facilities. These economic verities hold as true for rifles as they do for washing machines.

In 1876 the National Armory of Saint-ttienne had a work force of 2,500; that at Liege, Belgium, numbered 30,000. Saint-ttienne produced that year 58,000 rifles and pistols, while Liege turned out 936,000 military rifles. French production therefore was $23\frac{1}{2}$ units per man, while the more efficient Belgian operation was averaging $31\frac{1}{2}$ rifles per worker. This aberrant situation should not have been permitted to continue, and it is greatly to the credit of the Third Republic that it did something about it.

On February 7, 1885, Minister of War General Leuval addressed the Chamber of Deputies in the following terms:

The restrictive laws of 1834 and 1860 have had the effect of impeding the French arms industry from organizing itself to undertake production of military arms and equipment, and the events of 1870 have demonstrated very plainly that, except for the state arsenals, there is not a single establishment in the entire country that is prepared and properly tooled up to undertake such an order with any degree of efficiency.... It is time we realize that if the effect of the law is to shackle private commerce and industry, whatever enhancement of the public security that may have been brought about has hardly been of a measure to compensate for the damage.

And it is hardly logical, if indeed possible, to have a vigorous arms industry yet prohibit private possession; in 1870 French citizens were vigorously encouraged to do what the year before they had been proscribed from doing: to arm themselves. But 1870 was a year of crisis. Should what is normal and legal in a time of crisis become illicit as soon as peace returns? A bill introduced by Deputy A.V. Lagrange on May 7, 1885, raised the voice of reason: „Any person exercising his civic and familial rights may acquire and possess target and military arms, including the current French regulation military models, on condition that he, within thirty days following their acquisition, make a declaration to the mayor of the community of the number of arms in his possession.“

The bill came up for discussion on June 27. Minister of the Interior F. Allain-Targé, introduced a counterproposal which retreated somewhat from Lagrange's position: „Any person exercising his rights, and providing that he be a member of an authorized gun club, may have in his possession one arm of each of the French regulation military models on condition that he declare them at the Department Préfecture.“

In the government, opinion was divided. They temporized, they quibbled, and played the old French game of „drown the fish.“ Eugene Farcy, representing Paris, brought the Chamber sharply to task:

The government declines to allow members of gun clubs the possession of their arms under the pretext that this would constitute a menace to society. We always fear a revolution in France. What strikes me as deplorable today is that while we are promulgating restrictions for good patriots, those who ought not to have the right to carry weapons enjoy perfect liberty: our worst elements, those who assassinate, even in broad daylight on the boulevards and sidewalks and streets of Paris, carry revolvers which they had no trouble obtaining. Frankly, I cannot understand why the government, incapable of enforcing the laws we already have on the books, persists in piling up restrictions which apply only to honest people.

These are words we would be proud to hear today in the National Assembly - if only for once.

A law favorable to shooters and to the shooting sports, to industry and to export, was finally enacted on August 14, 1885. Such liberalism was not to everyone's taste, as we may judge by a decision of the Supreme Court of Appeals on July 4, 1891. „The freedom of commerce in arms within France can exist only in such measure as is compatible with Article 3 of the Law of May 24, 1834, which prohibits the possession of military weapons by private persons, and which has not been abrogated. It is of no importance whether or not the arms in question are still classified as regulation models. It suffices to prove their owner in violation if they are military-type weapons.“

This judicial subtlety, which was hardly more than refined hypocrisy, brings to mind the astonishing hypothesis which a deputy prosecutor proposed before a First President of the Court of Appeals of Paris, „If it is not a military weapon, it is a weapon which could be used for military purposes.“ This is all the more astonishing since the gun in question was an ancient .32 revolver.

The liberal legislation of 1885, despite its lumps in court, contributed substantially and in various ways to France's victory in 1918. The relative liberty enjoyed by shooters and gun clubs encouraged target shooting, and during the early years of the new century the sport saw prodigious expansion. Despite the fact that governmental subsidies were ridiculously feeble

compared to the sums consecrated by foreign powers to small-arms training, France became a nation of shooters, and of good ones.

One of the reasons-rarely recognized-for the high morale of the French soldier at the beginning of the Great War was the confidence he had in his rifle and in his personal skill with it. And this confidence loaded the scales during the hard weeks at Charleroi and the Marne. Later the Poilu came to recognize that the issue musket was second-rate compared to the Mauser 98s on the other side, but he consoled himself with the thought that his was prettier, and lighter-and he could hit with it.

A second consequence of the law of 1885 was that private industry was by now accustomed to producing military weapons. The Lebel service rifle Model 86/93 had been discontinued years before, after 2,800,000 had been built, and in order to recoup losses in the early days of the war, armories were scraped bare of all remaining stocks. To supplement the Lebel, the Model 07-15 was adopted, a mediocre weapon but somewhat easier to manufacture than the 86/93. Because of the overwhelming shortage of artillery, however, it was not until May, 1915, that private industry could hope to undertake rifle production, and even so the complexity and precision of even the 07-15 meant that in the beginning different components had to be subcontracted to different shops. Later on the larger companies built the gun in its entirety, and Delauney-Belleville reached a production level of 500 per day. Despite their necessarily late start and their preoccupation with artillery production, private industry accounted for 800,000 of the 2,500,000 rifles manufactured during the war. Working alone the government arsenals could never have reached the monthly production level of 102,000 rifles (July, 1916) which brought the supply to a point which later permitted lowering the production to a steady 70,000 units per month.

The Puteaux Model 1907 machine gun was a delicate wench, perfect on paper, fine on maneuvers, but too fragile for combat; production was abandoned before the war after 4,800 had been built, as this was felt to be a sufficient quantity. With the outbreak of hostilities, however, it was thrown back into manufacture. The best machine gun of the war was privately produced by the Hotchkiss Company, who, by the end of 1917 were rolling out a hundred guns a day, whereas production in the government arsenals never topped sixty. By the end of the war Hotchkiss had built 48,000 guns, compared to a total of 40,000 state-built Mle 1907s. The Gladiator Motorcycle works produced the C.S.R.G.-15 machine gun, better known as the Chauchat, and by November, 1918, had built 225,000 of them.

As for heavy artillery, French industry had their blueprints drawn, their studies completed, and an export market staked out all before the first shot was fired, and could have, had the orders and the critical materials allocations been forthcoming, put production in high gear in a relatively short time. If the first modern heavy artillery pieces did not make their appearance until 1916, and if we had to await 1917 to reach mass production, it was because everything could not be done at once, and the production of 75mm fieldpieces took priority. From Charleroi to Verdun the French were losing more 75s than they were making. And the situation would have been worse had not Creusot and Saint-Chamond, private companies, undertaken in October, 1914, the production of twenty batteries of nonregulation 75s of their own design.

Battle tanks, which finally forced the war to an end, were also produced by private industry: Schneider, Saint-Chamond, Delauney-Belleville, Renault, Berliet....

These few examples demonstrate that the industry served up with the shortest possible delay considering the lag time, hang-ups, and conflicting orders of the bureaucracy-everything the nation asked of it.

It is more than probable that if the „cannon merchants“ had not prospered in France well before 1914, the war would have been lost by the middle of 1915 for lack of artillery, for lack of shells, for lack of rifles. In short, France would have been ground under the jackboot twenty-five years ahead of schedule.

Of course France's shortage of materiel in 1940 was perhaps not nearly as crucial as her dearth of modern military doctrine, and her lack of leaders capable of initiative. And in 1914, without Lanrezac's disobeying orders and Gallieni's gambling, the French Army might have been decimated in six weeks. Just as in 1940. But that hardly negates the long-haul facts.

With World War I finally over, a perfectly understandable reaction set in, curtailing the shooting sports that had flourished under the benevolent law of 1885. The returning troops were fed up with war and weapons, and wanted most of all to avoid anything that might serve to bring their memories of suffering to the surface, sentiments which were shared by those who had stayed behind to suffer only comparatively less, and by the younger generation as well.

A certain „veteran mentality“ seemed to take hold, instinctively defensive, and quickly organized. This is important to the subject under discussion, because this mass of veterans, often disgusted by the chaotic conditions of unstable, inflation-ridden, then depression-ravaged postwar France, were cleverly manipulated by certain politicians; this became obvious in

February, 1934. The history of this frenetic epoch is far too complicated to record here, but it came to a boil on the evening of February 6, when, by pure coincidence, both the Communists and the Fascists staged mass marches on the National Assembly. By morning seventeen were dead, six hundred wounded, and the government was toppled, although this last was hardly a novelty. Several points should be brought out.

The immense majority of the demonstrators on the night of the 6th were unarmed, and moreover enjoyed the sympathy of both the municipal council and the police, who, led by the prefect, were at odds with the national government. Finally, it was the Garde Mobile which opened fire, in order to keep the Palais Bourbon from being overrun.

Panic-stricken, the government - or rather its successor-decided to ban the sale of military weapons (their definition of which was comprehensive to say the least) and to require gun dealers to register each purchase of revolvers.

But there was no armed uprising, unless you choose to apply the term to the many bloody demonstrations that erupted all during the rest of the month of February, 1934, and intermittently until the beginning of World War II.

No uprising, if you will, but in 1937 a formidable conspiracy - the Cagoule Plot-seriously shook the government. The Cagoulards (literally „the hooded ones“) were an ultra-right-wing secret organization well equipped with German submachine guns and Italian automatic rifles, and abundantly supplied with Spanish ammunition - armament so advanced that the French infantry looked obsolescent by comparison. But then the French infantry did not enjoy the benefit of supply lines leading to Nazi Germany, Fascist Italy, and disputed Spain.

The government perceived with alarm, if not horror, that there was a secret seditious organization capable of mobilizing, in Paris, an effective strength superior to the police and the Garde Mobile combined. In a country racked by passion, anything seemed possible, and the situation was fast settling into the classic scenario described by Malaparte: an extremist party arises, the other extreme closes ranks against it, and the army intervenes to maintain order.

The Minister of the Interior, Marx Dormoy (assassinated in 1941 by French Nazis, who were not afflicted with short memories) successfully dismantled the Cagoulards and began the measures which culminated in the infamous law decree of April 18, 1939, and its operating regulations of August 14 of the same year.

The Cagoule crisis was hot and edgy; the Spanish Civil War was winding up and the counterreverberations served further to rattle France. On top of this, war with Germany could break out from one moment to the next - the tide could not be turned, and it seemed less a matter of weeks than of days. The law of 1939 was far from perfect, but given the internal and international political climate in which it was born, it was not unreasonable.

The law decree of April 18, 1939, classified arms in eight categories:

1st category-firearms and their munitions used or intended for ground, naval, or air warfare

2nd category-weapons carriers, motorized or unmotorized, and including machine-gun tripods and the like

3rd category-devices for protection against gas munitions, i.e., gas masks, etc.

These first three categories compose Class A-„war materiel.“ The following five categories compose Class B-„arms and munitions not considered as war materiel.“

4th category-defensive arms and their ammunition

5th category-hunting arms and their ammunition

6th category-edged weapons

7th category-target, gallery, or salon arms

8th category-historical or collectors' arms and munitions.



Mauser .380 HSc model, considered a pocket pistol elsewhere, is „war materiel“ under French law, and off limits to civilians. The .32 caliber version of the same pistol is a „defense arm,“ however, and can be bought with a Class IV license. Thereby is the state made secure!



Rare Vietnamese copy of the 1892 service revolver, of which only one example is known, is a Class IV defense arm, Class IV licenses usually being limited one to a person - small collection that. The standard 1892 is Class IV as well. So for that matter are the 1873 and 1874 service revolvers, unless the collector can prove he acquired them between July 29, 1967, and December 31, 1968, in which case they are Class VIII collectors' items.

The administrative regulations of August 14, 1939, established the brutal details of what guns go in which category. Lumped into the 1st category are all the following:

- (1) Automatic pistols firing either the regulation .32 long cartridge, or a larger caliber cartridge (.30 Luger and Mauser are considered „larger“); automatic pistols of which the barrel is 11 cm. (4.33 inches) or longer; pistols of any caliber capable of burst fire or of which the magazine may contain more than ten cartridges; barrels and receivers of the above-mentioned arms; magazines capable of containing more than ten cartridges
- (2) Rifles, muskets, and carbines of any caliber designed for military usage, as well as their barrels, bolts, and receivers
- (3) Machine guns and automatic rifles of any caliber, as well as their barrels, bolts, and receivers
- (4) Cannons, howitzers, and mortars of any caliber, as well as their carriages, firing systems, breeches, limbers, recoil-absorption systems; aircraft cannons
- (5) Munitions, projectiles, and cartridge cases either loaded or empty for the arms enumerated in paragraphs 1, 2, 3, and 4 above
- (6) Grenades other than those termed offensive grenades

- (7) Sighting devices, fire control or detection devices (including range finders and searchlights) particularly for fire against ships and aircraft, as well as for firing from aboard ships and aircraft; cryptographic machines.

The 4th category includes revolvers of all calibers, automatic pistols of .32 ACP or smaller caliber (except for .30 Luger, Mauser, etc.), and dueling pistols. In June, 1956, .22-caliber handguns, until then in category 7, were reclassified into category 4.

Weapons in the 5th, 6th, 7th, and 8th categories are sold without restriction, but in order to purchase a 4th-category gun one must apply for a permit from the police or the gendarmerie. Only in the rarest of circumstances will the police approve the ownership of more than one category 4 gun by a private citizen. Occasionally two will be permitted—one for home and one for place of business.

As for category 1, the purchase of weapons classed in paragraphs 1 and 2 is permitted to certain authorized officials, to active duty and reserve officers, to noncommissioned officers on active duty, and to a few licensed shooters. These last are also permitted to purchase two rimfire handguns of a caliber not to exceed 6mm (.235 inch) and an overall length not less than 280mm (11 inches).

In short, the 1939 law was enacted under the not so fanciful threat of civil war. Given the circumstances prevailing when it was written, it was perfectly defensible. But is it so today? We doubt it. We have been saddled with this legislation for the past thirty years, during which time history has hardly stood still.

The German occupation of France during World War II, and the heroic resistance by the French underground, saw the massive distribution of arms of all sorts among the citizenry at a time when, in most areas, law and order were in an advanced state of decomposition. Commissioner Bourgoïn, considering in 1946 the question of whether military arms in civilian possession should be confiscated, put it bluntly: „Is it good logic for the government, in the name of order, to take away from the citizenry those arms which they were allowed to have at the time when irresponsibility was most to be feared, and which in fact were never the object of any serious abuse?“

There were certainly a number of hasty executions, but passions in these instances were so outraged that knives, ropes, or even bare hands would have sufficed had the guns not been there. And these executions numbered only several thousand, whereas the number of „illegal“ firearms in circulation was considerably over a million.

Since then we have witnessed the events of May 13, 1958, when the Fourth Republic was overturned with no notable spilling of blood. The wretched Algerian affair could have resulted in civil war, but if so it would have been the machinations of elements of the military, and not a citizens' uprising. There was a good deal of bomb tossing and sniping by the Secret Army Organization and the Algerian Liberation Front, but again, these were pros in action. The events of the day proved that only a minuscule proportion of the French population was seriously motivated one way or the other. This is all over now, even if the wounds are not fully scarred over, and no one seriously envisions a relapse.

Today France enjoys a period of relative calm in her strife-torn history. During the disturbances of May, 1968, when practically anything seemed possible, it is well to recall that not a shot was fired; as for those which were fired in June (by which time things had pretty well returned to normal) they can be counted on the fingers of one hand. The present tranquillity, relative though it may be, is perhaps due as much to the wisdom and maturity of the public as to lassitude and disillusionment.

Firearms legislation has two functions: to ensure the security of the state and that of its citizens. How does the 1939 law rate on this measure?

In 1937 the government found itself faced with a seditious organization capable of mobilizing, according to estimates at the time, a disciplined contingent which besides outnumbering the forces of order, was better armed as well. As if that were not serious enough, the loyalty of the police to the regime was in doubt.

Today France is at peace with itself, and we need merely observe not only the manpower but the mobility, coordination, and firepower of the police, the Gendarmerie Mobile, and the Republican Security Companies (riot police) to conclude that any citizens' uprising, even granted the vast number of guns in illicit circulation, would have small hope of success. In order to prevail, an insurrection would have to be widespread, tightly organized, perfectly orchestrated, and achieve total surprise. Widespread insurrection does not appear to be in the cards, and none of the other elements, granted the efficiency of the police and that of their intelligence units in particular, are even remotely possible.

Besides, there is more than a bit of paradox in a government which is uneasy at the thought of arms in the hands of the citizenry, yet lets them decide the fate of the nation by referendum.

And if the referenda were to cease, history has proved that disarming the citizenry is too often the prelude to dictatorship. If an armed uprising could not prevail against a strong democracy, a broad-based guerrilla movement could cripple a dictatorship. Any government that tries to disarm its citizens is not as sure of its legitimacy as it would like to have believed.

Imagine the impossible. Suppose all firearms were confiscated. Political plotters and criminals alike would simply obtain them from abroad. The Model 1910 Browning with which Paul Gorgoulov, an insane White Russian, killed President Paul Doumer was bought in Prague, Czechoslovakia; and Oustachi, the Hungarian-trained political assassin who killed Foreign Minister Jean Louis Barthou and King Alexander of Yugoslavia in Marseilles on October 9, 1934, had obtained his Mauser Schnellfeuerpistole in Trieste. A .32 automatic weighs about a pound, and a 9mm Parabellum goes about twice that. A reworked smuggler's car will carry at the least three hundred automatic pistols under the false floorboards; we know this from frequent experience. And maritime contraband, though it requires better organization, also yields a lot more freight. During the late 1950s and early 1960s entire arsenals entered France illegally through the Mediterranean ports. Then there is airborne contraband on the one hand and military armories on the other. These latter were the source of the guns used in the assassination attempt against General de Gaulle at Petit-Clamart in August, 1962.

If the government has no need for the 1939 law to protect it from the citizenry, and if the law is ineffectual in protecting it from conspiracy, what is it supposed to accomplish? This is best demonstrated by examining the arguments most frequently used in opposing suggestions that it be relaxed. There are three of them: that criminal violence would increase; that firearms accidents would be multiplied; and that the security of the state would be imperiled. We shall examine each in turn.

Criminality

We should distinguish immediately between premeditated crimes and crimes of passion. Crimes of passion are committed with whatever comes to hand; such otherwise innocent items as portable radios, lamp bases, and frozen legs of mutton have all been used to kill on occasion. Fire pokers were frequently so employed in the pre-central-heating era, and hatchets were quite the fashionable implement for domestic mayhem in France around 1963-64. It is up to the courts to punish the crime, for there seems to be no way to prevent it. To suppose that by legislating against weapons such crimes will be diminished is aberrant logic, and akin to proposing the elimination of prostitution by bulldozing the Rue Saint-Denis.



During the period of the good circular, untold numbers of .45 Colt 7873 reproductions were sold in France. None were misused, yet their acquisition in aggregate was regarded by French officialdom as an „abuse“ of the law. The Dakota .45 shown here, made in Italy, is a very fine quality gun. This one has a cutaway barrel, and was used as a salesman's sample.

Were we to accept the thesis that weapons should be suppressed, and carry it to its logical conclusion, hammers, hatchets, ice picks, chisels, carving knives, cleavers, crowbars, tire irons, bale hooks, ball bats, bricks, and large sticks would all have to be restricted, since each of these is manifestly deadly, and the list is hardly complete. Since such wholesale prohibition is impractical, we might question the value of halfway measures.

French law is more than stringent where handguns and militarytype rifles are concerned, but there are no formalities whatever involved in buying a shotgun. Anyone bent on eliminating a spouse, neighbor, or whomever, is welcome to buy a shotgun. If it is a bit cumbersome for his taste, a quarter hour with a hacksaw will hew it to handier proportions, and the result will be a far more devastating weapon than any pistol. This takes no great imagination, and happens on

occasion, but if shotguns, either intact or otherwise, constituted a social menace of any magnitude, we would have had antishotgun legislation decades ago.

Even the pistol laws, rigorous as they are, are of more than dubious efficacy, since no practicable licensing system can filter out all those who might indulge in a crime of passion. The case of Monsieur Chevalier, the mayor of Orleans, who was killed by his outraged wife in 1951 by repeated shots from a .32 automatic, is classic, and regrettably only one case among hundreds. Madame Chevalier killed her husband with his own pistol, and needless to say, the mayor had all the proper papers for it. She, by the way, was later acquitted.

Curiously, the law sometimes seems to encourage these tragic affairs. Prior to 1934, dealers were free to refuse to sell a gun if they saw fit; and no gunsmith worthy of the name would sell to just anyone who could get the money onto the counter. Today, his refusal to „honor“ a police-issued purchase permit would subject the dealer to prosecution on discrimination charges. A couple of years ago a Parisian gunsmith with a shop near the Place de l'Opéra sold two .25 caliber pistols to a pair of customers. Well dressed and turned out they were, and each provided with the sacrosanct permit, but something in their manner made the dealer uneasy. He was explicit when I spoke with him. „Prior to 1934 I would have refused to sell to them, and would have shown them the door.“ The same is true of those whose conduct in the shop proves them too immature to use any firearm safely. But if they have the permit, the dealer must sell them the gun, nowadays.

If little can be done about crimes of passion, what about the more habitual or professional forms of criminality? It is here that the beneficial effects of a stringent gun law should really be visible. The fact that such effects are no place discernible leads us to believe that it is entirely false that the legislation on the books in any way impedes crime.

A thorough police investigation is involved before a permit is issued, and it can be affirmed that few go to criminals. Even fewer criminals, we suppose, bother to apply for a permit, yet there is no evidence that they have any difficulty acquiring arms. Police officials, we are told, estimate that only about 10 percent of the handguns in the region of Paris are registered. As if there were not enough pistols still floating around as debris from our various wars, the smuggling of handguns into France operates, as we have seen, on a reasonably large scale—certainly large enough to keep up with the demand. Criminals have their own network of supply, and it readily provides anything desired. A recent case by the Sûreté's Organized Crime Squad is illustrative.

The gang which planned last year to knock off the cash room of the Louvre department stores was armed with a 9mm Browning Hi-Power, a Colt .45 auto, and several latest-model French Army submachine guns, all of them category 1 weapons, the first two barely accessible to the community of mortal Frenchmen, and those last utterly prohibited. In whose hands then, were these fine guns which the honest among us can only dream of owning? One gang member was a convicted armed robber who had previously shot at the police, for which he was sentenced to twelve years imprisonment, but turned loose before he had served ten.

And this is largely where the problem lies. It serves no social purpose to prosecute paper criminals—otherwise innocent citizens who happen to possess a war trophy which the law happens to prohibit. Investigative and judicial energies would be much better employed by prosecuting to the hilt the handful of undesirables who put guns to criminal use.

It might be tempting to steal a car, knowing you risk only fifteen days, and that often with suspended sentence; armed robbery can be profitable, even with a two-year sentence, if there is every chance of parole after ten months. In the final analysis, it is on the certainty of justice that public safety depends, and it serves little for the police to arrest a malefactor if the courts have revolving doors. Likewise it seems neither normal nor moral to condemn a peaceable citizen to three months of prison (and that is the minimum, since the law requires from three months to three years) for owning a gun, when the thief risks only fifteen days.

Indeed, if the 1934 law has had any effect on habitual criminals, it may well have been to safeguard their pursuits, for although the criminal will always find the means to arm himself, he is now almost insured by the law against armed resistance from his victims. For one of the most obvious results of the law has been the prosecution of victims of criminal violence who have had the misfortune to defend themselves with an unregistered gun. There have been substantial numbers of such prosecutions in recent years, much to the gratification, we suppose, of the criminal element.

Accidents

The argument that if the law were relaxed, resulting in more firearms in circulation, a proportional increase in accidents with firearms would necessarily result, seems entirely logical at first glance. Certainly even with things as they stand, there are numerous accidents with guns each year, often involving children. The remarkable fact, though, is that these accidents occur

more often in urban than in rural areas. Recall that more than two million hunting licenses are issued in France each year. When we consider that many hunters own several guns, that a certain number do not bother to get licenses, that many former hunters no longer hunt regularly, and that many shotgun owners do not necessarily hunt, then there must be at the very least two and a half million shotguns in France, and the hundred or so fatal or very serious accidents each year is a very small percentage. Most of these injuries, moreover, take place during the hunt; accidents in the home are quite rare, and are almost never caused by a child. Why? Because sportsmen teach their children at an early age that a gun is not a toy, that it is not to be handled without permission, and that it is never to be pointed at anyone.

In the city, nine times out of ten accidents involving children occur when the child discovers a gun in the house which he has not only never been taught how to handle safely, but that he did not even know was there, his ignorance often enough the result of his parents' fear that the fact of the unlicensed gun's existence would filter back to the police.

Even the most cursory instruction in firearms safety would prevent an appalling number of tragedies each year, for children (adults, too) are usually very receptive to such training, and there are only two main points which absolutely must be pounded home: (a) that a gun must never be pointed at any person or in any direction where an accidental discharge could cause harm, even if the gun is empty, and (b) that a gun is never considered empty unless you personally have just opened and examined it.

Ordinarily it is about school age that the risks commence. The child is intensely curious, and strong enough to manipulate and discharge a gun if he happens to find one. His mind, likewise, has developed to the point that he learns quickly and retains what he is taught. It is at this age, then, that a child should be taught to respect firearms and to handle them safely. Indeed, the rules of firearms safety are much easier to put to memory than the multiplication tables.

There is no reason why this should not apply to adults as well. Those of the American states and Canadian provinces which require mandatory attendance at a Hunter Safety course before a hunting license is issued have proved that such instruction dramatically reduces accidents. We would like to see this approach applied across the board—the issuance of a handgun permit should be dependent on the successful completion of a course in firearms safety and basic marksmanship. Education will reduce accidents; it is a proved fact. It is highly questionable, however, whether restrictive gun legislation prevents as many accidents as it causes.

The instinctive repulsion which many people feel toward firearms is a curious psychological aberration. When a pedestrian is run over by a car, it is obviously either the fault of the driver or of the pedestrian himself; it never occurs to anyone that it might be the car's fault. In the case of a firearms accident, quite the contrary—the gun is always to blame. „If only there had not been a gun in the house,“ „If only it had not been loaded,“ „If only such implements of evil did not exist.“ How many of us have not heard such utterances from the mouths of otherwise sensible people?

A gun, it is plain on inspection, is a tool built of metal and wood. It has no mind, no will, no animistic volition, and is no more dangerous in itself than a razor blade, a pot of boiling water, or a power saw. To one who has been taught to handle it safely, a gun no longer has the aspect of a mysterious and forbidden fruit which, frankly, is the cause of most accidents.

The Security of the State

We have gone into this problem, if you consider it a problem, at length in the preceding pages, and there is little more to say other than to note that although the authorities seem horrified at the thought of a pre-World War I military rifle in private hands, no one gets excited about the two and a half million or more shotguns in France. Loaded with buckshot or slug, the shotgun is a formidable combat weapon, as the Germans must have been well aware, since they made great haste to confiscate all they could locate when they occupied France in 1940. Shotguns aside, the number of „illegal“ weapons in private hands must number several hundreds of thousands, and if all these citizens who live in endemic infraction of the law decided simultaneously to put their firearms to ill use, it would take an armored column to get through from Paris to Dijon. But in actuality, these citizens are as peaceable as any, and we can see no reason for the law not to be rewritten to accommodate this fact.

The notion that private ownership of firearms constitutes a serious danger to a democratic government would be comical were it not propounded with such high seriousness. In the United States, where there are possibly more guns than people, proponents of antigun laws have marshaled a vast assortment of arguments to support their position. The possibility that guns in the hands of private citizens might imperil the government seems not to have occurred to them, probably because everyone would recognize it as nonsense.

In summation, restrictive or repressive gun laws are intended to prevent crime, to diminish the number of accidents, and to safeguard the security of the state. Insofar as we can

determine, they do none of these things, and in many instances the results seem just the opposite of what was intended.

What then are the chances that the onerous law of 1939 might be relaxed? Slim. But it did happen once, just slightly, and briefly, for one year, four months, two weeks, and three days.

The law decree of April 18, 1939, you recall, established category 8 for „antique arms of historical and collectors' interest,“ which could be bought, sold, and traded without formality. The decree of August 14 of that same year delivered the word on what guns this loose definition would legally cover. In brief, any gun of a design which was introduced into manufacture prior to 1870 was considered in category 8. Thus all semiauto pistols and most metallic cartridge pistols and revolvers wound up in either category 1 or 4, leaving only premetallic cartridge handguns, some pinfire revolvers, and a rare scattering of rimfire handguns in category 8. For purposes of administrative simplification, the police generally considered all pinfire weapons to be in category 8, and all rim or center-fire handguns to be subject to category 1 or 4 licenses.

The shooter, then, unless he was a muzzle-loading buff, had a formidable bureaucratic gauntlet to run in the pursuance of his sport, and collectors whose interest focused on the fascinating turn-of-the-century era found the law an insurmountable barrier. In effect they had no right to interest themselves other than vicariously in arms of this epoch.

All was not put right on September 6, 1967, but much was, for that was the day that the Journal Officiel carried what was ponderously known in French legalese as „The Circular of 29 July 1967 Modifying the Circular of 21 November 1960 Relative to the Decree of 14 August 1939 Concerning the Application of Article I of the Decree-Law of 18 April 1939 Amended Establishing the Classification of War Materiel, Arms, and Munitions.“

The Circular of July 29, 1967, dabbled in inconsequentialities for most of its tedious length, but the last line dropped a beatific bombshell into the laps of almost unbelieving French collectors, for it read „Category 8-Arms of all types of a model prior to 1885.“ The old cutoff date of 1870 had been moved up a full fifteen years, and tens of thousands of Frenchmen who owned guns such as the 1873 service revolver found themselves suddenly back within the law.

The new date of 1885 had been carefully chosen. Smokeless powder was invented in France, and France therefore had been the first nation to adopt a smallbore, high-velocity military rifle, the 8mm Lebel of 1886. By drawing the line for collectors at 1885, all smokeless powder military rifles of whatever nation remained in category 1 as war materiel-although the apprehension of a successful revolution's being pulled off with such as 1886 Lebel strikes us as odd, to say the least. The first semiauto pistol, the Clair, followed along in 1888, so self-loaders generically remained in categories 1 and 4, depending on caliber. All pinfires, on the other hand, were now definitively in category 8.

As for the rest of the lot, rimfire and center-fire pistols and revolvers, most were clearly pre- or post '85, but literally dozens of models were very nearly astraddle the line, and the task of the police, who had to make delicate rulings in an area in which their expertise was rudimentary at best, was not to be envied, although the French gun magazine Cibles and the gun enthusiasts' protective organization ANTAC made heroic efforts to ease the burden on law enforcement agencies by compiling and making available data on questionable weapons. In several instances Cibles and ANTAC were able to deliver expert opinion to defense attorneys while trials were already under way, thus winning acquittals for shooters who were arrested and prosecuted for owning entirely legal guns.

The hidden portent of the Circular of 29 July 1967 lay in the fact that arms of a „model“ or „system“ anterior to 1885 were declassified, and here the French bureaucrats failed to heed the pervasive influence of American TV. Not so the Gallic powder-burners, who realized immediately that the Colt Peacemaker could now be bought without slugging their way through the cumbersome and arbitrary machinery of the police licensing bureau-and likewise for a box of cartridges. And what was a Ruger Blackhawk or Single Six, they asked, if not a basic Peacemaker design?

This latter hope died quickly. The Ruger, said the authorities, was manifestly a recent design. Moreover, for an arm to qualify as a type anterior to 1885, it would have to chamber a cartridge which was in use prior to that date. This pared availability of current production Peacemakers down to those in .45 Colt only, and took a similar toll of Italian reproductions. The way the Ministry of the Armies, which was charged with administering the law, viewed the situation is expressed in a circular issued on June 11, 1968:

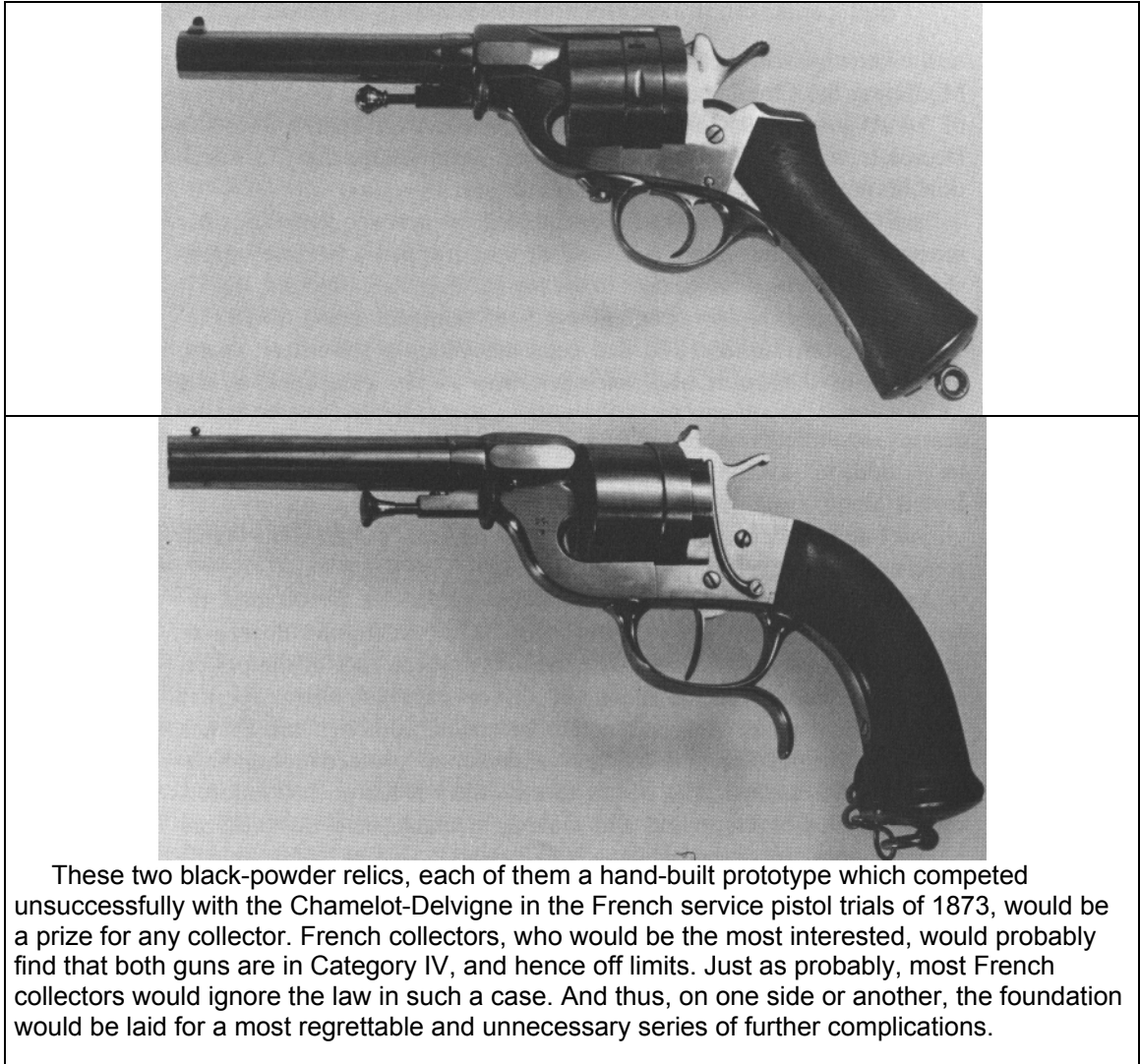
Since the appearance of the Circular of 29 July, 1967, arms of recent manufacture have appeared 'on the French market, which are more or less faithful reproductions of handguns which were introduced prior to 1885.

Attention is particularly drawn to the fact that these reproductions cannot be considered in category 8 except under the express condition that they reflect with rigorous exactitude all the characteristics of the type of pre-1885 weapon on which they are modeled; this rigorous

exactitude is to be imposed not only on the gun itself but also on the cartridges which it uses, the charge and composition of which must be identical to cartridges of that caliber in use prior to 1885, including being loaded with black powder.

All reproductions of arms and munitions not corresponding to these conditions are subject to the licensing provisions of the 1939 regulations referred to above.

It is pointed out that .45 caliber revolvers, Model of 1873, should be, because of the new cutoff date adopted, classified in category 8.



These two black-powder relics, each of them a hand-built prototype which competed unsuccessfully with the Chamelot-Delvigne in the French service pistol trials of 1873, would be a prize for any collector. French collectors, who would be the most interested, would probably find that both guns are in Category IV, and hence off limits. Just as probably, most French collectors would ignore the law in such a case. And thus, on one side or another, the foundation would be laid for a most regrettable and unnecessary series of further complications.

Black powder .45 Colts became immediately popular in France, despite the fact that the stipulations spelled out in the Circular of June 11, 1968, were not, it would seem, rigorously enforced. And unfortunately not, in the light of later events. For six months later, the beneficent Circular of July 29, 1967, was flatly revoked:

Ministry of the Armies

Circular of 31 December, 1968 Modifying the Circular of 21 November 1960 Relative to the Decree of 14 August 1939 Concerning the Application of Article I of the Decree-Law of 18 April 1939 Amended Establishing the Classification of War Materiel, Arms, and Munitions.
Paris, 31 December 1968

I. By Circular dated 29 July 1967 (Journal Officiel of 6 September 1967, p. 8999) modifying the Circular of 21 November 1960 relative to...[etc.]...the cutoff date of 1885 for the classification into Category 8 for historic or collectors' arms was adopted, replacing the cutoff date of 1870, in force since 1939. Since the appearance of this Circular, and although the Circular of 11 June 1968 (Journal Officiel of 27 June, 1968, p. 6013) established very strict conditions to which arms must adhere in order to be considered in Category 8, substantial quantities of arms of recent manufacture, more or less faithful reproductions of models anterior to 1885, have been introduced on the French market.

Because of this state of affairs, the Circular of 29 July 1967 establishing the cutoff date of 1885 for arms and ammunition in Category 8 is provisionally suspended until further notice; the prior regulations therefore resume their full effect.

II. Persons who have acquired, during the period from 27 July 1967 until the date of the publication of this present Circular in the Journal O Officiel, arms and munitions of a type from 1870 to 1885, may retain them without formality.

The Minister of the Armies
For the Minister and by delegation:
The Director of the Cabinet
Casimir Biros

From the Journal Officiel of January 23, 1969.

Brusquely, without warning, what was legal yesterday is prohibited today. Why? Because „substantial quantities of arms...have been introduced on the French market.“ That is clear enough. During the sixteen and a half months that the good circular was in effect thousands of revolvers and tens of thousands of cartridges were sold, to the tremendous benefit of gunsmiths, and thanks to tariffs and taxation, to the benefit of the State as well.

Sixteen and a half months should be ample time in which to judge the effect of a new law. What effect then did these thousands of outmoded but quite usable handguns have on the crime rate? None whatsoever. A minute study of the French press over this period fails to disclose a single crime committed with a gun of a type reclassified into category 8 by the Circular of July 29, 1967, and if such there were, we can be assured it would have been trumpeted loudly. Not only were there no crimes in which these guns were used, but more surprising still, they figured in no accidents.

Yet nine months after the good Circular took effect Paris was crippled by the demi-insurrection of May, 1968, and the rude reverberations shook France's major cities from border to border. Where were these thousands of handguns which had been sold with no license whatever required for the better part of a year? Nowhere in sight. Not one was fired, nor even displayed.

If the five hundred and five days of the good Circular proved anything, it was that French citizens have reached responsible maturity, that they can be trusted with arms, that gun enthusiasts do not take to the barricades at the slightest whim or fancy and turn their muzzles against the forces of order. More's the pity that the Government has not the maturity to recognize this.

So after a brief taste of a small liberty, the French shooter is today back where he has been for the past thirty years-under the heavy heel of a law which makes even a liking for guns itself inherently suspect. This program of actively discouraging public interest in firearms and the shooting sports, assiduously supported by the governments of four successive regimes, has had predictable results. As the market for firearms withered, so necessarily did the industry to the point that France, in this area of technology, is at a standstill. As shooting faded as a popular sport, so did France's standing in international competition. Not even the military could escape this inexorable chain of consequences.

If the prodigious efforts made after 1890 to popularize shooting as a national sport gave France's conscript army of 1914 a percentage of ready-made marksmen which proved invaluable, such could not be hoped for today, when the average recruit has never held a military rifle in his hands before induction, fires no more than forty rounds by the time he finishes training, and is considered by some perverted rationale as „combat ready.“ The officers' corps seems largely uninterested in marksmanship, and in any event considers it far less important than close-order drill and military courtesy. The inevitable result is that the skilled rifleman is a rare exception in the French army and receives virtually no encouragement. As for units in which the rifles are racked in the armory after shooting without even being cleaned, we can, much to our mortification, easily cite examples.

There is a lack of interest in shooting, a lack of respect for the weapon, thanks to which, at international military shooting matches, France holds a hegemony on the uttermost bottom of the score sheet. At the recent Mediterranean Championships, France was crushed by such as Portugal, Italy, and Greece, and had to salve her pride with the reflection that she had triumphed over Monaco!

The following tallies speak eloquently:
International Military Sports Championships - Athens, 1957:
In the combined speed-accuracy match France took 8th, 11th, and 22nd places.

Arnhem, 1958

| | |
|------------------------|--------------|
| Rifle, accuracy | nil |
| Rifle, speed | 6th |
| Olympic pistol | nil |
| Military pistol, | accuracy nil |
| Military pistol, speed | 4th |

Overall results

| | |
|-------------------|-----------|
| 1st Sweden | 84 points |
| 2nd United States | 75 points |
| 3rd Norway | 57 points |
| 4th Greece | 50 points |
| 5th France | 26 points |

Oslo, 1959

| | |
|---------------------------|-----|
| Rifle, accuracy | nil |
| Rifle, speed | nil |
| Olympic pistol | nil |
| Military pistol, accuracy | nil |
| Military pistol, speed | nil |

Overall results

| | |
|------------------|-------|
| 1. Norway | 8,864 |
| 2. Sweden | 8,837 |
| 3. United States | 8,661 |
| 4. Greece | 8,528 |
| 5. Netherlands | 8,237 |
| 6. Spain | 8,119 |
| 7. Belgium | 7,811 |
| 8. Turkey | 7,723 |
| 9. France | 5,950 |

France had trounced Korea and Luxembourg.

Athens, 1960

The United States took the first two places in military pistol, accuracy; and the top three positions in the speed and combined matches. France snagged a fifth place in the military pistol team match, and a third place in the silhouette shoot.

Final standings by team:

1. United States
2. Greece
3. Sweden
4. Norway
5. Portugal
6. France
7. Netherlands
8. Belgium
9. Korea

Buenos Aires, 1962

The United States, Sweden, and Argentina swept the field.

Championships of the Latin Nations, Bucharest, May, 1963

In the smallbore-rifle prone matches, French shooters took 5th, 6th, 16th, 17th, and 18th places, which would seem more auspicious had there been more than twenty competitors.

In the free-pistol match: 3rd, 10th, and 11th places (out of 17).

But the apotheosis, one might say, was seen in September, 1963, at Macolin, Switzerland, which hosted the World Championships of the Modern Pentathlon. The final tally for the team pistol match was as follows:

| | |
|-------------------|--------------|
| 1. U.S.S.R. | 2,990 points |
| 2. Hungary | 2,860 |
| 3. Australia | 2,800 |
| 4. West Germany | 2,780 |
| 5. United States | 2,640 |
| 6. Switzerland | 2,580 |
| 7. Austria | 2,460 |
| 8. East Germany | 2,420 |
| 9. Finland | 2,360 |
| 10. Great Britain | 2,340 |
| 11. Romania | 2,300 |
| 12. Mexico | 2,280 |
| 13. Brazil | 2,240 |
| 14. Sweden | 2,160 |
| 15. Japan | 1,720 |
| 16. France | 1,680 |

Hmm!

There is a close relationship between the mediocrity of the French military in matters of marksmanship and the distaste-worse, ignorance-of the mass of the citizenry for its late and generally unlamented national sport. This, the result of four decades of unremitting policy on the part of the government, is easily judged by its fruits, the fate of the French in the Olympic games. Here is the tally, for all to admire:

| Year | Gold Medals | Silver Medals | Bronze Medals |
|------|----------------------------|---------------|---------------|
| 1896 | - | - | - |
| 1900 | 5 | 4 | 4 |
| 1904 | (shooting events not held) | | |
| 1908 | - | - | 2 |
| 1912 | 2 | - | - |
| 1920 | - | 2 | - |
| 1924 | 2 | 1 | - |
| 1928 | - | - | - |
| 1932 | - | - | - |
| 1936 | - | - | 1 |
| 1948 | - | - | - |
| 1952 | - | - | - |
| 1956 | - | - | - |
| 1960 | - | - | - |
| 1964 | - | - | - |

There is scarcely a Frenchman, however little he may care for la gloire, who can find this other than scandalous and pitiable.

Anyone familiar with the situation as it stands would be dumbfounded by words such as these:

The ranges maintained by our gun clubs are open to all beginners of good will, and the clubs spare no sacrifice to make guns and ammunition available to them at the lowest possible price.

At the same time, veteran shooters, many of them past masters of the sport, selflessly devote their spare time to instructing novices and schoolchildren who come to the range, thus producing throughout the nation innumerable highly competent shooters, who, as they are called up each year for military service, carry with them the ability to use their rifles effectively.

This is the ludus pro patria which, in time of peace, constitutes for our youth one of the most intelligent and most virile occupations to which they could devote themselves.

One has to have followed closely the operation of our gun clubs to appreciate the enormous service which they perform for the nation, not only in propagating a taste for firearms, but by their constant and persevering efforts in making tremendous progress in the art of shooting sports themselves. In the past ten years the average ability of French shooters has increased in proportions which one could not have dared to hope for in the short time since the clubs were created.

The speaker? Monsieur Cunisset-Carnot, First President of the Court of Appeals in Dijon. The date? 1899, fourteen years after the introduction of the good law of 1885.

Could it ever be so again? Certainly. French gun clubs, those pitiful few that are left, would be just as diligent, just as self-sacrificing as their ancestors, if only they could. But the legal straitjacket to which they must conform leaves little elbowroom. There is still lethargy to be shaken off; small steps can be taken. But notable improvement must await at least partial relaxation of the law. We have been waiting for more than thirty years now.

FIREARMS LEGISLATION IN THE UNITED STATES

„It will be of little avail to the people that the laws are made by men of their own choice,“ wrote Alexander Hamilton, „if the laws be so voluminous that they cannot be read, or so incoherent that they cannot be understood; if they be repealed or revised before they are promulgated, or undergo such incessant changes that no man, who knows what the law is today, can guess what it will be tomorrow.“

Perhaps no sector of the American corpus legis falls so thoroughly within the scope of Hamilton's strictures as does firearms legislation. According to current estimates there are some 20,000 gun laws on the books of the United States and its political subdivisions, and we are constantly threatened with more. Many are „incoherent“ as Hamilton feared, and more are founded on illogic and enforced capriciously. Cataloging them all is far beyond the scope of this chapter, but we shall attempt a modest overview, to see if some sense can be made of the situation.

The French shooter, as we have seen, is both blessed and damned by the historical evolution of his nation. Its rigidly centralized administrative structure means that there is only one law to contend with, and it will usually be administered evenhandedly, if heavy-handedly, whether he resides in the Pas de Calais or the Haute Provence. The American shooter, on the other hand, has (we discover by process of division, and assuming the figure of 20,000 given above to be correct) some 400 laws to contend with even if he never crosses a state line.

The Florida quail shooter who lives in Tampa, as far as we know, need only take care to abide by the season and bag limits and have his hunting license and the property owner's permission. If he moved to Miami, however, he would be obliged to register his scattergun with the police.

The pistol shooter who is licensed in White Plains may not take his weapon to Queens, though he is welcome to take it to Albany.

By moving from one state to the next the handgunner may sometimes escape from near-total oppression to near-total liberty. Sometimes the same thing may be accomplished by moving from one county to another within a state. We know of some who have indeed changed domicile, taking themselves and their families to an unknown part of the country in flight from what they consider repressive government - in short, for much the same reason that their ancestors came to North America in the first place.

Generally, however, one struggles along as best one can, abiding by the laws one is aware of, while breaking dozens whose existence is quite unsuspected, as well as perhaps a few which the individual may judge to be unsupportable. For gun laws, like most laws, depend primarily on voluntary compliance, and it is this which makes them at once both onerous and ludicrous. For it accomplishes nothing worthwhile for law-abiding citizens to submit to bureaucratic harassment, whether or not they are deprived of their hobby and the means of protecting their households, if criminals ignore the law with total nonchalance, as of course they do.

If, in most parts of the United States, handgunners and gun hobbyists in general manage to exist tolerably well within the law, it is in part because their avocation enjoys a constitutional protection which is lacking in France.

The Second Amendment to the Constitution reads in toto: „A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms shall not be infringed.“ Exactly what that is or was supposed to mean is a question of some moment. Shooters, whenever an antigun bill is proposed in Congress or legislature, instinctively seek shelter behind Constitutional battlements and, if the legislation passes, feel their supposedly inalienable rights to have been trampled underfoot. The opposing faction tends, for their part, to yawn broadly whenever the Second Amendment is mentioned, and to contend that a right to bear arms, while it might have been reasonable in the days when Indian war parties roamed the woods, has no place in modern America. As for repealing the Second Amendment: entirely too much trouble; much easier simply to ignore it.

On another level are those who contend that the supposed „right to keep and bear Arms“ does not apply to „the people“ as individuals at all, but merely to the „well regulated Militia,“ ergo the National Guard. Hence all it means, according to more extreme interpretations, is that you have a „right“ to join the Guard if they will let you in, a „right“ to fight for your country if it is attacked. The fact that „duty“ would be a more appropriate term than „right“ in this respect is only one of the minor embarrassments to this approach. Nonetheless, it is a hugely popular one among authors of high school and college textbooks. Sometime during the 1950s I began, as a matter of habit, dipping into civics and American government textbooks when I happened across

them, to see what the author's interpretation of the Second Amendment might be. The interpretation was no less astonishing than the unanimity behind it, and Ogg and Ray's *Essentials of American Government*, one of the most respected college-level texts in its field, may be quoted as typical. Here we are told that, „The arms referred to [in the Second Amendment] are those of the soldier; and it is not only the right, but also the duty, of every citizen, if called upon, to bear such arms in the service of his country. The 'bearing' of arms intended for private use, however, may be regulated and restricted by both the national government and the state.“

Since neither history nor legal precedent seems to support such a view, we are tempted to conclude that the textbook writers have allowed themselves a vast amount of editorial discretion in hopes that someday the Supreme Court or Congress will seat a majority nurtured on their sophistry, and hence the law will be rewritten and the Constitution interpreted in the fashion that they would like to have seen in the first place.

Shooters tend to fasten on the independent clause, „the right of the people to keep and bear Arms shall not be infringed,“ as a model of clear and concise prose. Nonetheless, the dependent clause, „A well regulated Militia being necessary to the security of a free State ...“ is likewise a part of the sentence, and cannot be conveniently ignored.

It is generally accepted, and was recognized by the Supreme Court in *Presser v. Illinois*, 116 U.S. 252, that the „Militia“ referred to in the Second Amendment is the totality of able-bodied citizens capable of bearing arms in the event of invasion or other national emergency, and was not limited to formal military organizations. Thus militia, people, and citizenry were virtually synonymous terms. It is unlikely, moreover, that the drafters of the Constitution intended the right to keep and bear arms to be limited to the purpose of ensuring a military manpower pool trained in weaponcraft, since the constitutions of Pennsylvania and Vermont, which predated the Federal Constitution, both embodied articles guaranteeing „that the people have a right to bear arms for the defense of themselves and the state.“ Many subsequent state constitutions have enunciated even more clearly the principle that the right to keep and bear arms applies with equal force to arms kept for the defense of oneself and one's family. Thus the constitution of the state of Michigan states curtly that „Every person has a right to bear arms for the defense of himself and the state,“ while that of Mississippi reads, „The right of every citizen to keep and bear arms in defense of his home, person, and property, or when lawfully summoned in aid of the civil power shall not be questioned; but this shall not justify the wearing of concealed weapons,“ thus reserving to the legislature the right to regulate this latter practice as it sees best.

The intent of Congress, as expressed on several occasions, would seem to support this interpretation of the Second Amendment. In passing the Property Seizure Act of 1941, an amendment was included to prevent its being misconstrued to justify the registration or requisitioning of privately owned firearms. The report of the House Committee on Military Affairs elaborated on this amendment in the following terms:

The amendment provides in substance that nothing contained in the bill shall be construed to authorize the President to requisition or require the registration of firearms possessed by an individual for his personal protection or sport, the possession of which is not prohibited nor the registration thereof required and that the act shall not impair or infringe the right of an individual to keep and bear arms. It is not contemplated or even inferred that the President, or any executive board, agency, or officer, would trespass upon the right of the people in this respect. There appears to be no occasion for the requisition of firearms owned and maintained by the people for sport and recreation, nor is there any desire or intention on the part of the Congress or the President to impair or infringe the right of the people under section 2 [Second Amendment] of the Constitution of the United States, which reads, in part, as follows: „the right of the people to keep and bear Arms shall not be infringed.“ However, in view of the fact that certain totalitarian and dictatorial nations are now engaged in the willful and wholesale destruction of personal rights and liberties, your committee deems it appropriate for the Congress to expressly state that the proposed legislation shall not be construed to impair or infringe the constitutional right of the people to bear arms. In so doing it will be manifest that, although the Congress deems it expedient to grant certain extraordinary powers to the Executive in furtherance of the common defense during critical times, there is no disposition on the part of this Government to depart from the concepts and principles of personal rights and liberties expressed in our Constitution.

In 1963 the Arms Control and Disarmament Act was amended to assure, quoting directly from the law, that „Nothing contained in this Act shall be construed to authorize any policy or action by any Government Agency which would interfere with, restrict, or prohibit the acquisition,

possession, or use of firearms by an individual for the lawful purpose of personal defense, sport, recreation, education, or training."

Even the Gun Control Act of 1968 gave a genuflection in passing to the traditional rights of American shooters: "... it is not the purpose of this title," so declares the opening paragraph of the act, "to place any undue or unnecessary Federal restrictions or burdens on law-abiding citizens with respect to the acquisition, possession, or use of firearms appropriate to the purpose of hunting, trapshooting, target shooting, personal protection, or any other lawful activity, and...this title is not intended to discourage or eliminate the private ownership or use of firearms by law-abiding citizens for lawful purposes."



This target-sighted Smith & Wesson may not enter the United States; it is tainted in the eyes of the Treasury Department by military service during the Battle of Britain, which, say we, is all to its favor.



The PPK at right is forbidden entry into the United States; the PPK/S at left may enter freely. The crucial difference between these guns: about 1/10 inch on the vertical measure.

If Congress has generally taken a liberal view of the Second Amendment, the Supreme Court has hewn closer to the letter and has attached a good deal of import to the "Militia" aspect. Thus in *United States v. Miller*, 307 U.S. 174, the court stated that:

In the absence of any evidence tending to show that possession or use of a "shotgun having a barrel of less than eighteen inches in length" at this time has some reasonable relationship to the preservation or efficiency of a well-regulated militia, we cannot say that the Second Amendment guarantees the right to keep and bear such an instrument. Certainly it is not within judicial notice that this weapon is any part of the ordinary military equipment or that its use could contribute to the common defense.

Thus the Court upheld the National Firearms Act of 1934, since the so-called „gangster weapons“ which it regulated had, in the opinion of the majority of the justices, no particular military application. The presumption left by the *United States v. Miller* ruling is that a private citizen is fully protected vis-à-vis the Federal Government in his right to own military-type small arms. Thus Mr. Justice Black wrote recently that „Although the Supreme Court has held this amendment to include only arms necessary to a well-regulated militia, as so construed, its prohibition is absolute.“

If the *Miller* ruling reemphasized the fact that there were limits beyond which Congress could not venture in firearms legislation, the states, or at least those fifteen whose constitutions contain no guarantee of a right to keep and bear arms, were under no such hindrance. For although the *Presser* ruling had made some intimations that the Second Amendment might in some circumstances be binding upon the states, the long-standing consensus was that the Second Amendment, like most of the rest of the Bill of Rights, was a restriction on the Federal Government only; in *Miller v. Texas* 153 U.S. 535, the Supreme Court had stated explicitly that „the restrictions of these amendments [the Second and Fourth amendments] operate only upon the Federal power, and have no reference whatever to proceedings in state courts.“

And that, more or less, is how we are fixed for constitutional protection on the Federal level. The next few years, however, will bear careful watching, for there are virtually certain to be firearms cases appealed to the Supreme Court in the near future, and when that occurs the Court's opinion will be of extreme importance, for the status quo of the Second Amendment is too ambivalent, too permeated with contradiction, to come through court without fundamental reinterpretation.

Such judicial reinterpretation, when it comes, could be very favorable to shooters, or highly unfavorable; the odds appear about equal.

On the negative side we note the tendency of the Court in recent years to ignore the musty document our forefathers left us, and, in effect, to write the Constitution afresh to suit their own fancy. This fact, what René Wormser termed „unfortunate judicial `stretching,' „ referring to „many such cases in which the Court has `gone overboard' to rationalize what seemed to be a desirable result,“ is not much disputed by constitutional lawyers, as far as I have been able to tell, not even by those who think it's a jolly good thing. From its origin in the philosophically refined „sociological jurisprudence“ of the late Roscoe Pound, longtime dean of the Harvard Law School, this influential doctrine has seen such widespread acceptance over the past several decades, and has been so constantly employed as a canon of government, that we may now pass judgment on it without fear of being too precipitous. On the one hand it has fostered much which is decent, just, and humanist; on the other it has lent itself to distortion in the most disquietingly absolutist directions. A constitutional authority of no less pedigree than Professor Arthur E. Sutherland, who holds an endowed chair at the Harvard Law School, declared in an interview with Carl Bakal, author of *No Right to Bear Arms*, that handguns are „a bad thing.“ „I feel the handgun has no place in America today. If I were a dictator I would eliminate handguns from the American way of life.“ Shotguns and rifles would soon meet the same fate under the Sutherland regime. „In our kind of civilization, I can't tolerate any kind of weapon.... In our present crowded society, there is simply no place for guns.“

If Professor Sutherland's candidacy for dictatorship is a mere pleasantry, his program for firearms confiscation is entirely serious. It can and should be undertaken immediately by Congress, he feels, and no outmoded interpretation of the Second Amendment should be allowed to stand in the way of what he conceives to be the common good. How is it to be carried out? Very simply, by interpreting the Second Amendment as being totally dependent on a modernistic definition of the well-regulated Militia. The Second Amendment would thereby cover only current, officially adopted military small arms, the „people“ would be National Guardsmen who would „keep“ their arms locked up in a central armory and „bear“ them when ordered to. Anyone with the temerity to plead the Second Amendment when prosecuted for owning a weapon would be faced by a judge who need only say, according to Professor Sutherland, „I'm sorry, you have no defense.“

Why this pitiless prosecution of citizens who might continue to exercise a right which has been theirs for two centuries? Sutherland explains it in a flippant preamble to his proposed law: „Whereas the United States is getting crowded, and most of its people live in cities, and whereas the frontier is gone, and so we no longer need to ride horses or shoot Injuns, now therefore do we establish this statute to promote the general welfare and public safety....“

As for the Bill of Rights, as interpreted by everyone except the textbook writers, Sutherland brushes it aside imperiously: „To say that the Second Amendment forbids the Federal government from stopping any Tom, Dick, and Harry from buying a shotgun or rifle or handgun in a hardware store is not at all convincing to me.“

The distinction between Toms, Dicks, and Harrys as opposed to citizens is that the former are irresponsible and incompetent to make their own decisions, and have to have this done for them by the government. A government which regards most of its subjects as Toms, Dicks, and Harrys is said to be absolutist. If I may continue editorializing, I might note that the notion of someone such as Professor Sutherland in a position of power, however laudable might be his intentions, strikes me as profoundly unsettling. To strip a peaceful citizen of the means of protecting his household on the grounds that since he lives in a city he needs no protection other than that afforded by the police flies in the face of the most elementary sense of reality. To propose such measures with total disdain for the equities of those who would be injured by them is worse still. Yet such things could come to pass, and such bills are pending before Congress.

On a more optimistic note, we observe the tendency of the Supreme Court in recent years to protect individual liberties against encroachment by government with extreme seriousness. Moreover, in a series of landmark decisions, of which the *Mapp v. Ohio*, *Gideon v. Wainwright*, and *Malloy v. Hogan* cases are probably the most celebrated, the court has held that the due process clause of the Fourteenth Amendment makes many of the rights enumerated in the first ten amendments binding on the states as well as on the Federal Government. It is to be expected that this trend will continue; indeed it will have to if the court is to remain philosophically consistent.

Immediately preceding the due process clause, we find in the Fourteenth Amendment the statement that „No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States,“ an imperative which could properly be the vehicle for elevating the right to bear arms to the status now enjoyed by our other enumerated rights. For evidence of its worthiness of such dignity, we evoke the words of Mr. Justice Douglas, who wrote that:

So far as the Bill of Rights is concerned, the individual is on his own when it comes to the pursuit of happiness. The right to work, the right to education, the right to marry as one chooses, the right to medical care—these and all like guarantees are significantly absent. The closest the Framers came to the affirmative side of liberty was in „the right of the people to bear arms.“

„Yet this too,“ Justice Douglas continues, „has been greatly modified by judicial construction.“ Yet we are not without hope that future interpretations of the Second Amendment will resurrect it as the vital guarantee of a fundamental individual right which the Framers, with little doubt, intended it to be.

If this is done, the path will be strewn with some rather thorny embarrassments. For one thing, if the „militia“ aspect is given the stress it has often received both in the courts and elsewhere, it will soon become apparent that virtually all of our current military small arms are selective fire, the citizens' access to which has been severely restricted by law ever since 1934. Other restrictive provisions of the National Firearms Act of 1934 would also have to be called into question. Indeed it is interesting to note that this has already been done. In *Cases v. United States*, 131 F.2d 916, the First Circuit Court of Appeals noted that „the federal government...cannot prohibit the possession or use of any weapon which has any reasonable relationship to the preservation or efficiency of a well-regulated militia,“ and went on to question the validity of the Miller rule (to the effect that sawed-off shotguns have no legitimate military application), „because of the well-known fact that in the so-called 'Commando Units' some sort of military use seems to have been found for almost any modern lethal weapon.“ An examination of any Second War resistance movement (including the British Home Guard) or any conflict of whatever sort during the post-Korea era, merely serves to make more self-evident the correctness of the Circuit Court's view.

Of course it is quite possible to contend that subjecting such weapons to confiscatory taxation is not, by the letter of the law, the same thing as „prohibiting“ them, but it most certainly is a gross „infringement“ of the „right to keep and bear“ them, and the Supreme Court in recent years has shown extreme impatience with governmental maneuvers which tend to take away with the left hand rights which have been piously proclaimed with the right hand upraised.

Thus two divergent paths are open to the Court in future interpretations of the Second Amendment. For the moment the law is the law and the Constitution is the Constitution, and it is quite up in the air as to what the one has to do with the other.

For the past three decades there have been two Federal statutes in force governing the traffic in firearms. The National Firearms Act of 1934 regulated the manufacture, possession, and transfer of automatic weapons (machine guns), silencers, sawed-off shotguns and the like, while the Federal Firearms Act of 1938 had to do with the licensing of manufacturers and dealers, the prescription of records to be maintained by them, and the interstate transportation or shipment of firearms and ammunition. Both these acts were incorporated into, lavishly expanded, and superseded by the Gun Control Act of 1968, which was somewhat hastily

passed into law in the aftermath of the tragic assassinations of Senator Robert F. Kennedy and Dr. Martin Luther King, Jr.

The GCA 68, as it is commonly referred to, has its desirable aspects, primarily in its perhaps overstrict regulation of mail-order sales of firearms, its channeling of legitimate firearms transactions through licensed dealers, and its again probably overstrict regulation of what it terms „destructive devices.“ In general, however, the Act is so permeated with inanity and accomplishes so little of good at so great a cost in terms both of the expense of its enforcement and administration and of the needless frustrations and inconveniences it heaps on legitimate students of firearms, that I would be surprised to learn that even its sponsors were honestly proud of it.

Since many of the guns illustrated in this book come under the shadow of the GCA 68 and of its predecessor, the National Firearms Act of 1934, it might be worthwhile to clarify their status in the eyes of the law.



Rare .25 Mouser 1934 model is a collector's prize. It may not enter the United States: too small.



The .32 Beretta Model 70, a very well-designed belt and pocket pistol, was extended in all directions and garnished with adjustable sights and a grooved trigger in hopes of rating enough points to qualify for importation into the United States. The resultant Model 100 is an entirely useless gun.



The fine Beretta Model 20 was grotesquely extrapolated in hopes of meeting United States Treasury approval.



The Beretta Model 20 in original format: one of the best of its type. None are known to have entered the United States.



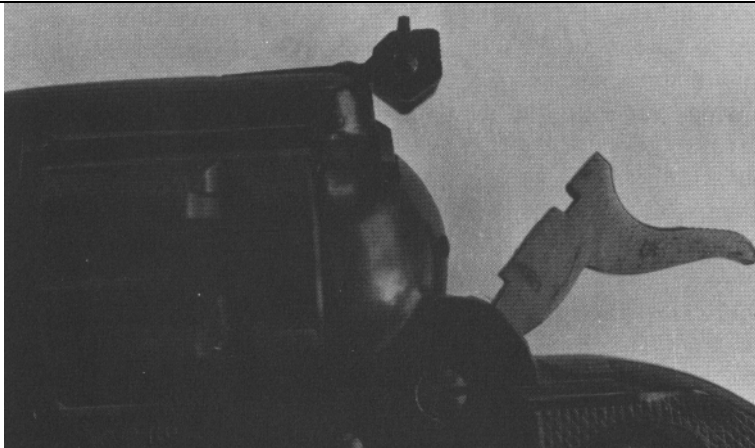
Silencers, or sound moderators, subject to confiscatory taxation in the United States, are not so frowned on in France and Great Britain, where it is felt the less noise the better.



The Walther TPH, a first-class pocket gun. Three specimens are known to be legally in the United States.



The Czech CZ45, a fine design, sells for \$20 in West Germany, and at last report was being snapped up eagerly for \$90 in the United States as police officers, collectors, and designers outbid each other for the few remaining examples.



Imported single-actions must be jury-rigged with a hammer block to pass Treasury drop tests. The West was tamed with none of this lot. This design by Schmidt of West Germany.



Smith & Wesson's Model 61, a dubious rendition of an abysmal design, could not sell if subjected to competition from superior European guns.



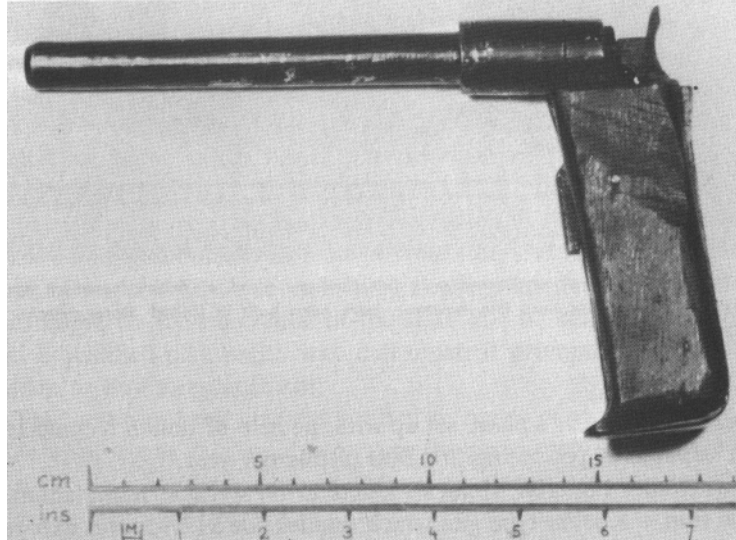
This gun may be legally imported.



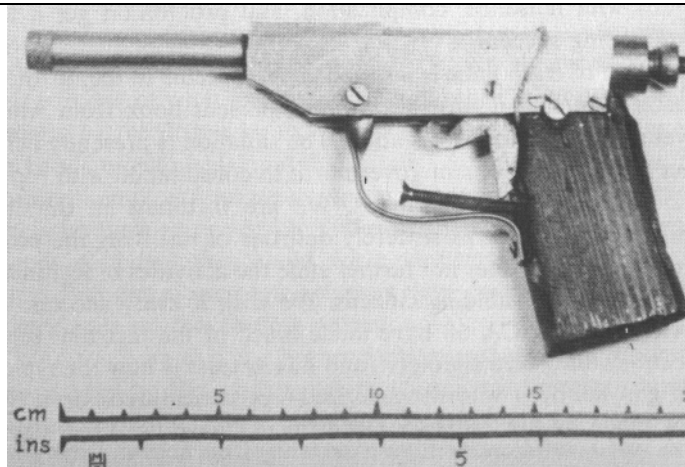
This gun may not enter the United States. The only difference between the two is the serial number prefix, P on the first gun and A on the second.



These guns, Colt Agent and Smith & Wesson Chief's Special, if once exported, may not reenter the United States. They are „too small.“



A Frenchman put together this crude but effective single-shot, home-built handgun. It appears to employ a cap nut for a breechblock, and to use a standard single-action searage.



Somewhat more sophisticated is this striker-fired handgun with a proper bar-stock receiver, built by a Mau Mau terrorist in Kenya.



Quite a decent piece of workmanship in this tip-down pistol of British basement manufacture. Far better guns than this, however, have been built in United States prisons.





Five hundred rounds of 9mm Parabellum would probably batter this hand-built blowback to death, but had it been chambered for .32 or .380 ACP, it might go on shooting forever. The maker - probably an Asian, though the pistol turned up in Belgium - must have wanted to exercise his self-evident talents as an autopistol designer, since he could have made ten submachine guns in the time it took to turn out this piece.

Certain types of firearms and accessories must be registered with the Director of the Alcohol, Tobacco, and Firearms Division of the Internal Revenue Service of the United States Treasury Department, and a tax must be paid each time the gun or whatever changes ownership. Subject to registration and a transfer tax of \$200 are:

(1) Machine guns, that is, any firearm which is designed to fire more than one shot for a single pull on the trigger. The Mauser Model 712 „Schnellfeuerpistole“ with a semiautomatic to full-automatic selector lever on the left side of the frame is the best-known handgun in this category, although pistols of Italian, Spanish, Chinese, Russian, and other provenance will be encountered originally manufactured for selective fire, not to mention basement conversions of such as the Model 1911.

(2) Sawed-off or short-barreled shotguns and rifles, or pistols made from shotguns or rifles. Any shotgun or rifle must have an overall length of at least 26 inches, no matter what its barrel length. However, even if overall length exceeds 26 inches, the gun is still illegal, and subject to registration and taxation, if it is a shotgun and the barrel or barrels are not at least 18 inches in length, or if it is a rifle and the barrel is not at least 16 inches in length. Those who are struck by this curious inequity might be interested to learn that the legal limit on rifles was cinched back from 18 to 16 inches some years ago to accommodate the tens of thousands of individuals who, as was said, lived in chronic infraction of the law as possessors of M1 carbines which they had brought back from the wars, the barrels of which were 17-and-a-fraction inches long.

We have seen beautiful single-shot hunting and target pistols made from rolling block carbine actions and the like. Unfortunately they were illegal. Remington did, however, manufacture pistols on the rolling block action, and if you can locate an original one, it will be entirely legal, even though it be identical in every significant respect to the verboten one made by a gunsmith from a carbine action.

As another sidelight on this paragraph of the law, we might recall the curious lever-action pistol made from an 1892 Winchester carbine and carried by Steve McQueen in the television

series Wanted Dead or Alive. It was of course a gimmick, and totally impractical as a weapon-far inferior to the Single Action Armies with which the supposedly outgunned opposition was equipped. However, since it was subject to the same legal requirements as a machine gun, it was regarded with much awe by the ignorant, the more so since, we are told, there was a Treasury Agent in permanent attendance, assigned to ride herd on this ferocious piece of equipment.

(3) Shoulder-stocked pistols. Any handgun which chambers metallic cartridges and which is fitted with a detachable shoulder stock-and there have been many made-is subject to these registration and taxation provisions, providing the barrel length of the gun is less than 16 inches. If the arm does not chamber metallic cartridges it may be stocked no matter what the barrel length-Colt percussion revolvers and reproductions thereof are often sold with shoulder stocks. If the gun fires metallic cartridges and its barrel, like that on the Colt SAA „Buntline“ model, is 16 inches or longer, it may be stocked. Otherwise not. Many pistols such as P.08 Lugers and Mauser Model 1896s and variations thereof are almost invariably encountered with either a lug or a slot on the backstrap for the attachment of a stock. You may legally own either the gun or the stock without registering it, but not both at the same time. If you keep the pistol in the attic and the stock in the cellar, and one happens to fit the other, you are in violation of the law.

(4) Silencers. Any silencer, sound moderator, muffler, or device by whatever name which is attached to a firearm in hopes of thereby diminishing the noise of cartridge discharge, is strongly frowned on by the government, whether the device accomplishes its purpose or not. Most home-built ones do not; most factory-built ones are only marginally effective; and the best examples are quite effective, though not so much so as espionage films would lead one to believe.

(5) Destructive devices. These include artillery, mortars, recoilless rifles, bazookas, grenades, land mines, antitank rifles, rockets with more than a prescribed charge of propellant or warhead composition, et al., and need not concern us further.

Subject to registration and a transfer tax of \$5 are guns which are classified as „any other weapon.“ These include:

(1) Certain smoothbore pistols originally manufactured to fire shotgun shells. Prominent among these were the Marble Game Getter, which carried a .22 rifle barrel over a .410 gauge shotgun barrel (usually encountered with a folding metal stock, although presence or absence of this protuberance does not affect it one way or another under the law); the Harrington & Richardson Handy Gun, a breakopen .410; the Stevens Tip Up model, another single-shot, smoothbore shot pistol which, if mounted with its shoulder stock, bounces up into the \$200 tax bracket; and the Ithaca Auto-Burglar gun, a rather imposing double-barreled 12-gauge with a pistol grip and foot-long pipes, the presence of which, in the hands of the peaceable, imposed instant tranquillity in its day.

(2) Penguns. These, still reasonably common, are simply pistols made in the shape of a fountain pen. Many were made for the OSS during the war, but these are rarely encountered. The common ones were made to fire tear-gas cartridges in sizes from 12 gauge down to .25 caliber, with .38-caliber devices predominating. The fact that they can chamber and fire standard ball (lead projectile) cartridges or shotshells, even if not safely so, makes them illegal. Modern tear-gas penguns, which have no firing chamber but discharge gas particles from a plastic „cartridge“ which screws onto the end of the device, do not fall under this heading, although users of such implements should be reminded that they can cause permanent blindness if discharged into the face of an assailant at close range. The courts have found for the erstwhile assailant in recent litigation arising from such incidents.

(3) Smoothbore shot revolvers. These are revolvers modified to fire shot charges more efficiently by reaming the rifling out of the bore and, in some instances, choking the muzzle. Shot revolvers are legal providing the bore contains rifling.

Ownership of any of the above items, unless they have been properly registered and the appropriate tax paid, exposes one to a fine of \$10,000 or imprisonment for ten years, or both. Since it could well be that we have overlooked a particular weapon or type of weapon which would fall under one of the licensure categories here described, anyone anticipating acquiring a gun, the status of which seems uncertain, would do well to check with the nearest branch or regional office of the Internal Revenue Service before making the purchase.

The preceding proscriptions were carried into the GCA 68 virtually intact from the National Firearms Act of 1934. One of the original features of the 1968 Act which may be of some merit is Title III, whereby it is now a Federal offense punishable by \$10,000 fine and/or two years imprisonment for

Any person who -

- (1) has been convicted by a court of the United States or of a state or any political subdivision thereof of a felony, or
- (2) has been discharged from the Armed Forces under dishonorable conditions, or
- (3) has been adjudged by a court of the United States or of a state or any political subdivision thereof of being mentally incompetent, or
- (4) having been a citizen of the United States has renounced his citizenship, or
- (5) being an alien is illegally or unlawfully in the United States

to own any type of firearm whatsoever capable of firing metallic cartridges. Any person who is knowingly in the employ of an individual meeting one of the above descriptions, and who, in the course of his employment, knowingly receives, possesses, or transports a gun is subject to the same penalties. The President of the United States and the governors of the various states are empowered to grant immunities under this title if they see fit.

In reflecting on this title it occurred to me to wonder why adjudged alcoholics and drug addicts were not included, and the only answer seems to be the celerity with which the bill was hustled through Congress. Category 4 would seem to have been intended as a sort of ex post facto excommunication of Oswald, while Category 5 was evidently stuck on in the hasty hope that it would provide some leverage against the Mafia. Category 1 is so heavy that we would like to believe that it too was drafted in a rush. At last report filching avocados was a felony in California, which scarcely seems justifiable grounds for depriving someone for life of the right to own a gun. Category 1 seems more oppressive still when we note that for the purposes of this title, „felony“ includes any misdemeanor „involving a firearm or explosive.“ I hope to be corrected by someone better versed than myself in the law, but it appears from the text that if you are arrested and convicted for discharging a firearm within the city limits after having shot a rattlesnake under the back steps with a shot cartridge in a revolver (shot cartridges in a handgun are effective for only a few feet, and try swinging a hoe under the back steps) you have pretty well had it as far as owning a gun goes, unless you can promote a gubernatorial pardon.

So the Gun Control Act of 1968, even when trying to enact provisions which, I am confident, more than 99 percent of America's gun owners favor in principle, looks distressingly like bad, slipshod, inequitable law.

Many of its other provisions do nothing to improve the image, and serve no evident purpose other than to make the task of the serious student and collector of firearms difficult, and at times impossible, and to protect domestic industry. And presumably we have domestic industry to thank in large measure for this state of affairs.

One of the more vexing sections of the Act is that governing the importation of firearms into the United States, which is effectively limited to guns which in the opinion of the Secretary of the Treasury are „generally recognized as particularly suitable for or readily adaptable to sporting purposes, excluding surplus military firearms.“

From this pregnant passage have emanated literally pounds, if not indeed hundreds of pounds, of regulations, rulings, opinions, decisions, and so forth regarding what may and what may not be brought into the United States. For the student or collector of metallic-cartridge handguns, it is a horror, for most of the more interesting weapons of the turn-of-the-century era, just after the introduction of smokeless powder, when so much original design work was done, originated and most still remain in Europe. The semiautomatic pistol even today is largely a European project; American contributions to the genre, with the exception of John Browning's designs, perhaps half of which were manufactured only in Europe, have been minimal.

What obstacles then face the American handgunner who for one reason or another may want to import a gun which is not readily obtainable in the United States? First, it has to be big enough to be „sporting.“ This, according to Treasury regulation, means at least 4 inches high and 6 inches long. Any gun of lesser dimensions, and we may cite among only a few interesting ones most of the Charola-Anitua series, many of the Bergmanns, and the smaller Frommers, is rigorously verboten.

All currently manufactured pocket automatics of advanced design were of course outlawed immediately after the passage of the GCA 68, and this has had lamentable results, posing a particular burden on police officers, who are obliged, if they need an ultraconcealment gun, to purchase one of domestic manufacture. It might be noted that American-made guns of this type are of uniformly mediocre conception, and none of them would sell if they had to face competition from the Walther TPH, the Beretta Model 20, or the CZ45. The first two were not introduced until after the wall went up, so none whatever are available in the United States, while the third, which has been in production since the end of World War II, and currently sells for \$20 in West Germany, is presently fetching \$90 on the United States secondhand market, as cops, collectors, and students of design outbid one another.

The Walther PPK was another unfortunate victim of Treasury interpretation of this section of the GCA 68. It is worth noting in this respect that, on the one hand, there has not to my knowledge been a single case of a commercial PPK having been used in crime, and on the other that by 1968 the PPK's excellence of design and construction had earned it a popularity among American detectives that was absolutely unprecedented for a semiautomatic pistol. Why was it banned from importation? It measures only $3\frac{9}{10}$ " vertical - $\frac{1}{10}$ " too short!

If a pistol stands 4 inches tall and stretches 6 inches long, it is still far from guaranteed a visa. It must next undergo Treasury inspection and earn a certain minimum of „points“ which are awarded for various physical characteristics which are officially regarded as virtuous. Weight, for instance, is a „good thing.“ The heavier the gun, the more points it gets. The more cumbersome the better: every extra inch of barrel is worth added points. If a gun is on the light side, and does not extend much beyond 6 inches, it can sometimes snag enough points to get it over the limit by piling on gadgetry: adjustable sights, oversize „target“ stocks, a wide, grooved „target“ trigger, and a magazine disconnect safety all help up the tally, although the gun invariably comes through looking pretty grotesque, and unsuited for its original purpose. Finally, points are awarded for frame construction, with forged aluminum alloy, curiously enough, garnering more than forged steel.

Unfortunately, a great many of those pistols of most interest to collectors because of their historical significance, although they pass this scrutiny irreproachably, are nonetheless denied importation on the grounds that they have seen military service. No gun so tainted is permitted into the Land of the Free. This proscription leads to travesties of good sense of unprecedented magnitude.

Consider the Model of 1929 Swiss Luger. Adopted in the year of the Wall Street Crash, it was the standard sidearm of Helvetian officers for precisely two decades, and is still substitute standard. In the United States it is highly prized, and usually sought for in vain, by advanced Luger collectors. It may not be imported. When, in the late 1960s, Mauser in Germany decided to put the Luger back into production, they purchased the original blueprints, work sheets, tolerance tables, jigs, fixtures, and gauges for the 1929 Model from Waffenfabrik Bern, the Swiss Federal Armory. Thus the new Mauser Para

bellum, except for its glossy finish, checkered control knobs, wooden stock panels, and inscriptions, is a 1929 Swiss Luger, and some 100,000 will be imported into the United States. It is of small interest to collectors.

For the resolute Luger specialist, however, a slim chance remains. The Swiss arsenal ran a parallel line of 1929 pistols for commercial sale, identical in every respect to the military pistol except that the serial number was prefixed by the letter „P,“ standing for „Privat“ - these are probably importable. A small complication intrudes, however. When a Swiss officer retired he was allowed to keep his pistol, which was then stamped with the letter „P“ to indicate that it was no longer government property. I leave it to the Luger specialist to persuade the Treasury Department that the „P“ prefix on the anticipated pride of his collection is of one sort rather than the other, and to criminologists to demonstrate how much crime is prevented thereby.

If a handgun was manufactured during or prior to 1898 and does not chamber a cartridge which is readily obtainable in United States commercial channels, it may enter freely. The problem of course is with guns whose production life overlapped 1898. Thus, much to the consternation of collectors, only about half the production of the rare Mark III Webley is importable. The Mk III was adopted in 1897 and replaced in 1899, but is of considerable historical interest because of its participation in the decisive Battle of Omdurman in 1898.

The Alcohol, Tobacco, and Firearms Division of the IRS, which administers the GCA 68, keeps a phalanx of functionaries hard at work amassing data from which lists are drawn up to permit rulings on such arcane questions; in case of doubt the ruling is ordinarily in favor of the collector. The ATFD specialists are often extremely knowledgeable people, and studying the lists they turn out is quite an experience. Like most mortals, however, they make blunders, and one which comes to mind is their ruling against the importation of commercial prewar Oberndorf/Mauser sporting rifles on the grounds that since the top of the receiver was milled with charger guides, the gun was a converted G.98 or 98(K) military rifle. In fact, prewar Oberndorf spotters customarily carried charger guides.

Among other curiosities which might be cited is the fact that snubnosed revolvers of United States manufacture are unimportable; once they leave the United States their citizenship is revoked, and they are „too small“ to get back in.

The ostensible excuse for most of this foolishness was that it would put an end to the veritable flood of trash pistols which, during the years prior to 1968, was inundating the United States. Department of Commerce figures show the total number of handguns imported into the United States rising from 346,906 in 1965 to 1,155,368 in 1968. And although these figures probably give a distorted notion of the situation (since most importers, in anticipation of

restrictive legislation, were trying their utmost to build up inventory during 1968) the trend nonetheless was steeply upward, and there certainly were a hell of a lot of pistols coming in. Many of these, of course, were very fine guns. Many also were rubbish, fit only for use as sinkers while deep-sea fishing. Selling for about \$15 each, sometimes less, these pistols (of which the RG10, a six-shot d.a. .22 revolver with no provisions for extraction or ejection, was the classic) were widely distributed among our lower socioeconomic classes, who seem to lack the taste or the income or both for better guns, and as a consequence were frequently used in crime. The RG designation stands for Roehm Gesellschaft, the manufacturer, in Southeim Brenz, West Germany. One detective on the Washington, D.C., police department estimated in early 1969 that perhaps 40 percent of the guns seized in connection with homicides were Roehm revolvers, while Lt. Frank Connolly of the New York City ballistics squad stated that roughly 30 percent of the seven to eight thousand guns seized annually by the NYCPD for various reasons were Roehm-type guns. „You rarely see a zip gun anymore,“ Lt. Connolly told a New York Times reporter. „It takes time to make a zip gun. The kids are lazy so they buy one of these guns on a street corner from some guy who needs five bucks.“

It need not necessarily be inferred that the Roehm guns by their presence elevated New York's violent crime rate. Zip guns, knives, and stolen guns would likely have taken the slack of their absence. But by no means were they a salubrious phenomenon, and I would have supported wholeheartedly any equitable legislation which would have done away with them. The GCA 68 was not the answer. By the

time the Act was signed, Sid Eig, Roehm's principal importer, had reportedly already worked out arrangements with the German firm to manufacture the RG10 in the United States, and had a similar deal with Tongfolio, an Italian firm, to build an equally reprehensible .25 automatic of their design. By April of 1969, parts for 10,000 of the Tongfolio pistols had passed Miami customs, and The New York Times estimated Eig's plant, set up with the help of Italian technicians, to be capable of producing 200,000 pistols per year.

Meanwhile, Imperial Metal Products in New York, manufacturers of the Imp, a Roehm-type gun which retailed for \$12.95, was expanding facilities to reach production figures of 200,000 per year as well. Other such companies were cranking off in Nashville, Fort Worth, New York again, and elsewhere, with a combined production capacity of probably over a half million a year.

Thus, as far as keeping trash guns out of the country goes, the GCA 68 has been a crashing failure. As far as providing busywork for a burgeoning bureaucracy and loading the lives of legitimate students of handguns with nuisance, complication, and prohibition go, it has been a resounding success.

The problem of trash guns is a serious one, it seems to me, if for no other reason than that it provides an ever-present hook from which to hang yet more repressive legislation. The situation is presently being studied on the highest levels of government in consultation with representatives of shooters' organizations. We are fortunate in that the present administration seems sincerely desirous of resolving the problem in a manner which does not further stifle the activities of legitimate gun hobbyists and law-abiding citizens. We wish it every success.

Supporters of the GCA 68 have made much of the fact that semiliterate, beer-swilling bird shooters (and this at least is how the typical American gun hobbyist was characterized-or caricatured-in a film on the law made by the Treasury Department) have not been significantly inconvenienced by it. This is generally true. The shotgunner, and the rifleman as well, can still purchase his guns over the counter, with a minimum of formality, in his state of residence or in a contiguous state. (By August, 1971, only six states-Florida, Hawaii, Illinois, New Jersey, Rhode Island, and Utah-had not passed a contiguous-state law giving their residents the right to purchase in adjoining states.) He may purchase his ammunition over the counter when and where he wants it. If, while hunting or attending a target shoot in a distant part of the country, his gun breaks down or is stolen, he may purchase one to replace it by presenting to the local dealer a sworn statement attesting to his predicament, and giving the dealer the name of the chief law-enforcement officer in his home locality, who will be notified by mail of the transaction.

The pistol shooter has no such privileges. He is forbidden to purchase a handgun outside his state of residence, and there is a moderate stack of paperwork to do each time he buys ammunition. If his gun goes kaput on the other side of the state line he can merely hope to find a qualified pistolsmith who can repair it promptly, for he is forbidden to buy a replacement.

This section of the law was drafted in hopes of stonewalling criminals who, it was said, unable to pass the police scrutiny required for purchasing a handgun in their state of residence, would avail themselves of the more liberal environment of adjacent states to arm themselves. Thus in principle I am quite in favor of the law. In practice it has proved a personal burden, since I live in the rural extremities of my home state, and like all my neighbors have always looked

across the line for medical, cultural, and commercial facilities. Although all the local hardware stores stock rifles, shotguns, and the more common cartridges, there is not a proper gunshop within a hundred miles in my home state. I have always shopped at any one of seven fine gunshops in the adjoining state, which are now, of course, off limits to me. Were my home only fifteen miles farther east, I could, without breaking Federal law, continue shopping where I have always shopped.

It is moot to what extent this or any other section of the GCA 68 actually accomplishes its ostensible purposes of keeping guns out of the hands of criminals, and if this fails, of inflicting on criminals who choose to employ firearms a punishment more severe than they would otherwise have received. We find no fault with the objectives, but are unconvinced that they could not have been achieved at least to the extent that the present law achieves them, without heaping undue inconvenience on law-abiding citizens.

We have seen that the hunter fares reasonably well under the law. This is because the approximately 15 million American hunters constitute a potential block vote, if a lot of them were peeved on the same issue, which no legislator, except those from a few center-city districts, can treat lightly. Our Congressmen, with equal political acuity, seem to have recognized that handgun collectors and serious students of modern firearms constitute, as far as clout goes, a mere handful of „harmless drudges,“ to borrow a phrase from Samuel Johnson, whose equities need not be considered when law is written.

This is not intended to be a comprehensive discussion of the GCA 68. The act itself consists of 8½ large pages of very small, triplecolumn type, and contains many provisions both desirable and undesirable which we have not space here to mention. Any shooter who wants to be properly informed on the law may order a copy-Publication 627 (1-69) - from the Government Printing Office, Washington, D.C., 20402, for fifteen cents. As for commentary on the law, it is available in profusion, both pro and con, and both sides are wisely approached with alert skepticism.

Most of the legal restrictions with which the handgunner has to contend are state law, and this will probably be even more true in the future, if a significant number of states pass preemption bills reserving the entire field of firearms regulation to the state, and thereby nullifying local registration and licensure ordinances (though not local restrictions concerning discharge of firearms and the like). California has recently enacted a preemption statute, and such bills have been reported pending in Kentucky, Pennsylvania, and elsewhere. This notwithstanding, the most draconian restrictions extant are still city ordinances, with Philadelphia, New York, and Chicago being noted for the severity of their firearms codes.

Ordinarily, though, it is state law to which the handgunner must conform. As a rough rule of thumb, it may be said that most states do not require a license to purchase a pistol. The prospective buyer need only come equipped with adequate identification, data from which, along with a physical description and the buyer's signature, go into the dealer's records, where they remain for the police to check if they so desire. If the buyer happens to be an undesirable as defined in the GCA 68, he has broken Federal law as well as, probably, state law. Some states (Alabama, California, Connecticut, Indiana, Maryland, Pennsylvania, Rhode Island, South Dakota, Tennessee, Washington, and the District of Columbia) impose a waiting period, ranging from forty-eight hours to, in the case of Tennessee, fifteen days, before the buyer, who has filled out the papers, can receive the gun from the dealer.

The „waiting period“ is usually justified on the thesis that it affords time for emotions to abate and thereby perhaps prevents a certain number of homicides of passion. This theory is moot, if not ridiculous. However, the waiting period seems sound law to me, even though it imposes an inconvenience on those who must travel some distance to a gun shop, since it gives the police time to run a records check, and an investigation if necessary, and to take action before delivery of the gun is made. This may keep some pistols from getting into the wrong hands. And it may keep some poor guy who didn't know he was no longer allowed to own a gun from winding up with a Federal rap. Finally and frankly, the waiting period is good public relations for the honest shooter. The benefits of the law are well worth its burdens.

Eight states require either a purchase permit or a gun owner's ID card before a pistol may be bought. These are Hawaii, Illinois, Massachusetts, Michigan, Missouri, New Jersey, New York, and North Carolina. Virginia requires a permit in Arlington County and Alexandria. A rather extensive list of cities sprinkled across the country require local permits to purchase a handgun. The local gun shop, police department, or city clerk's office would be the first places to check.

Only two states, New York and Illinois, require a license to own a handgun, that is, to keep it at one's home or place of business.

Regulations on carrying handguns, either openly or concealed, in a vehicle or on the person, vary widely from state to state, and do not lend themselves to ready summation. Rarely is carrying a concealed gun without a permit allowed, and some states prohibit the practice

altogether, thus seriously abridging, in our opinion, the law-abiding citizen's right of self-defense. A digest of state laws is presented in tabular form on pages 82-83 of the NRA handbook *Firearms Laws and Court Decisions*, and on pages 343-51 of Carl Bakal's *No Right to Bear Arms*. A study of either will give an idea of the overall situation, nationwide, but because of the complexity of the subject and the fact that some laws have been changed since these books appeared, the only way to know exactly what the law requires in any particular state is to look it up in the state code or statutes and read it. The code is available for perusal by any citizen at the city hall, the county courthouse, or major libraries.

The issuing authority for pistol permits may be the local police department, the county sheriff, the probate or circuit judge, the state police, or some other office or official. Again, a perusal of the law will tell you who is empowered to issue permits in your state; it will give you little idea of how you will be received when you apply for one.

As an example of opposite poles, we may cite two rural counties with which the author has personal experience. Demographically, geographically, economically, they are virtually identical; they are both in the same state and adjoin each other. According to the state code, pistol permits, necessary to transport a handgun legally, either openly or concealed in a vehicle or on the person, may be issued only by the sheriff of the applicant's county of residence, although these permits are valid statewide. In one of the two counties the sheriff readily issues a permit to any applicant who does not have a criminal record. He has always done so, he said, and sees no reason not to, since he has never had a case of a permit-holder's getting into trouble with a gun; the licensee knows that if he abuses the permit he will never get another one. And this is pretty well a fundamental verity.

In the other county, no permits whatsoever are issued under any circumstances. The sheriff's stated point of view is that since no one gets a permit, no applicant is being discriminated against, hence no applicant has any valid ground for complaint. Since the wording of the law is „... the sheriff may issue a permit..“ (emphasis added), there is no legal recourse against his decision.

In other jurisdictions, the handgunner may expect to encounter a situation somewhere between these two. We do not know where the norm lies, but our personal experience, and that of close friends in several states, would suggest that bureaucratic harassment and abuse of police discretionary powers are more or less to be expected. The training manual of one large West Coast police department instructs officers that if a citizen asks for information on how to go about applying for a pistol permit, they must first of all seek to dissuade him. Only if this fails may they inform him that he may file an application at police headquarters. In another major city the chief has denied renewal of outstanding permits and put a virtual stop to the issuance of new permits, all the while ignoring both an opinion from the state attorney general that the new application form which he had introduced was unconstitutional, and reversal by the state appeal board of his decisions denying specific applications. In yet another major east-coast city a precinct licensing officer told an applicant that his job was to deny permits, not to issue them. And in still another city the police firearms instructor told the author, „I think anybody who wants a pistol permit ought to have to go through hell to get it.“ They do, in his town, and while handgunners as a group often tend to be strongly pro-police in outlook, in that city they frequently come through with a deeply ingrained grudge, the result of the entirely gratuitous abuse they have had to endure during the licensure experience. During the course of this conversation the officer recounted with approval the recent case of a Catholic priest who lived in and ministered to a slum community and whose application for a permit was denied; no reason, except that „the chief thinks there are too many guns in circulation already.“

Anyone intending to apply for a permit should first read the law carefully for informational purposes; he should not try to argue points of law with the police. If the application is denied, the applicant should consult a lawyer, for if legal recourse exists, the services of counsel are essential. In jurisdictions which have a reputation for being „tough“ on licenses, consulting a lawyer before filing application may be a prudent course.

Many of the general arguments concerning the desirability, or undesirability rather, of restrictive firearms legislation, were aired in the preceding chapter. We see no need to reiterate them here. It might not be out of place, though, to note that much of the vehemence with which the American handgunner opposes any further legislative restrictions stems from his conviction, based on practical experience with the laws now in force, that any new legislation is very likely to be administered arbitrarily and oppressively. Unfortunately, I have seen little to suggest that his apprehensions are unfounded. In addition, he fears on the one hand that any new restriction will serve as a stepping-stone to eventual confiscation of his firearms, and feels on the other that violent crime is a psychosociological phenomenon, and that firearms legislation, no matter how restrictive it may be, will have no discernible effect on the problem. On the first point there

is ample evidence that his fears are well founded. On the second, I have seen no persuasive evidence to the effect that he is mistaken, and much that would suggest he is correct.

Unfortunately, as positions on either side of the question polarize (to employ a convenient term which is, with much justification, currently in vogue), what seems to me a prudent middle ground has at times all but faded from view. Those who once merely advocated restrictive firearms legislation seem to have shifted to an across-the-board moral condemnation of firearms in general, and appear to be oblivious to the consideration that both firearms hobbyists and lawabiding citizens seeking to protect their persons and households have legitimate equities which deserve recognition and respect. This outlook is clearly enunciated by Carl Bakal, who writes:

It should be quite obvious that if one regards guns as potentially dangerous, there can be no halfway measures as far as controlling them is concerned. To impose controls on handguns, but not on rifles (which, at a distance, are even more lethal) and shotguns make[s] no more sense than controlling the sale of cocaine but not of heroin and morphine. If it is deemed wrong for a person to buy guns by mail, it should be equally wrong to allow him to buy them over the counter. (Otherwise, this would be comparable to restricting the sale of drugs by mail order, but not in stores.) If it is wrong for a person to buy any sort of gun-whatever the reason-it would seem logical that it should be wrong for him to retain a gun already in his possession. It then follows that if it is wrong or illegal for a person to buy or own a gun, there should be no earthly reason to allow him to buy ammunition for it.

Shooters, for their part, react with understandable defensiveness, and seem to lose sight at times of the fact that there is such a thing as intelligent firearms legislation, that the right to keep and bear arms is, even in purest theory, like most rights, a relative one. The great majority of shooters, I am confident, if asked to reflect, would subscribe to these viewpoints-very few would advocate total suspension of firearms laws-but as the position on each side becomes hyperemotional, and as the „gun problem,“ whether one of any magnitude exists or not, becomes a football for the politically ambitious, shooters find it more and more difficult to recognize men of good will on the other side who are sincerely desirous of reasoned conversation. Probably, and hopefully, there are those on the other side who feel the same way.

Emotionalism of either extreme, if it holds sway in legislative halls, introduces the grave risk of a serious abridgment of fundamental rights. The gun hobbyist and American citizen in general has the right, in our opinion, to own and enjoy firearms, and to protect himself, his home, and his family against criminal violence. He, a reasonable man, has the right to judge for himself the degree of force appropriate to employ in their defense, and the obligation to support his decision in court if the prudence of his actions seems questionable. He has the right to be spared bureaucratic caprice while seeking to obey the laws regulating the exercise of these rights.

Those who prefer not to own firearms, as well as those who do, have the right, in our opinion, to be assured that reasonable steps are taken to ensure that concealable firearms cannot easily (or legally at least) fall into the hands of criminals, of the feeble-minded, of those habituated to the use of drugs or chemicals which affect the rational process, and of those incompetent to use firearms safely. They have the right, moreover, to know that the law dissuades, as much as a law can dissuade, those who procure firearms illegally from using them in crime.

We hope that our jurists and legislators will have the wisdom to eschew haste and illogic, to act with calmness and reason, and with a sympathetic appreciation of all the equities involved. It does not seem too much to ask.

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